DOES NOT CIRCULATE

Journal

of The AMERICAN DIETETIC ASSOCIATION

JUNE 1961 VOLUME 38 NUMBER 6

Diet and Heart Disease
Theodore B. Van Itallie and Sami A. Hashim

Fashioning a Vegetable-Oil Food Pattern
Helen B. Brown

Meat for Low-Fat Diets
Helen B. Brown and Mary Jean Spodnik

Using the Vegetable-Oil Food Pattern
Alla P. Meredith

Attitudes and the Use of Food
Charlotte G. Babcock

Nutrients in California Lemons and Oranges
Glenn J. Joseph, John J. Birdsall, et al.

Labor Relations and the Professions
Dallas M. Young

44th A.D.A. Annual Meeting
St. Louis—October 24 to 27, 1961

MORE NEW

PRODUCT DEVELOPMENTS by Hobart

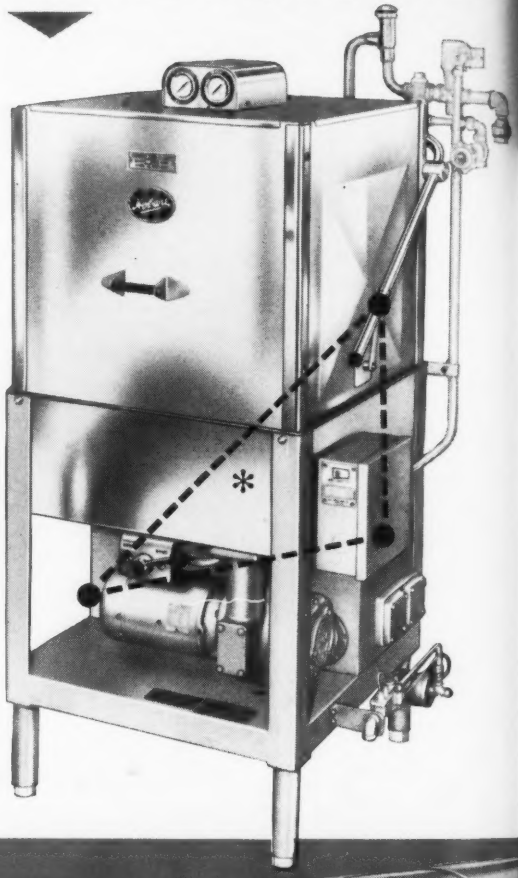
Here are the newest kitchen machine developments by Hobart, all field-tested and perfected to give you greater savings per serving. They are the result of the constant market and engineering research and product progress that make Hobart machines your best buy for greatest food-service efficiency.

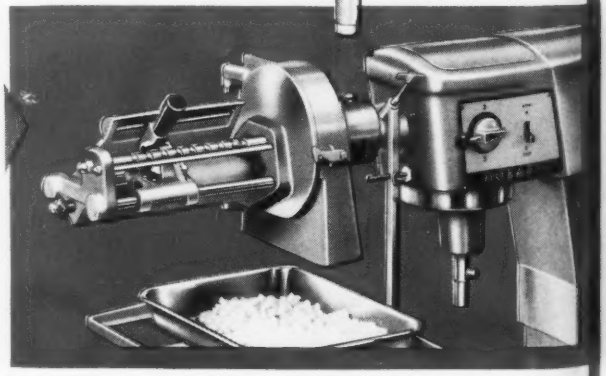
NEW 20-QUART FLOOR TYPE MIXER. The most popular bench mixer ever built is now also available as a floor-type mixer—the Hobart A-200-F. Here is efficient working height with the space-saving and convenience of floor operation, plus the Hobart 20-qt. mixer.

The new A-200-F incorporates all the performance-proved Hobart mixer features—positive drive, positive speeds, positive Hobart planetary action—that assure positive results. Clean-lined design assures the utmost in sanitation. All controls centralized. This mixer is also available with timed operation and stainless metal finish.

NEW AM SERIES DISHWASHERS WITH THE TimeSaver Triangle *

A new high in dishwashing performance and convenience. Revolutionary door lift—no chains, pulleys or door weights inside or out. You can raise the doors with your finger tips—it's that easy. Drain control is raised to convenient working height—stooping is part of the past. Waist-high wash-and-rinse control switch completes the TimeSaver Triangle—making operation faster and easier. Many more features, such as removable stainless steel rack tracks, sanitary legs, eye-level thermometers, high-efficiency motor and pump, and more. The biggest surprise: the low original and ultimate cost. Available for straight-through or corner installation.





NEW POWER DICER ATTACHMENT. Here's new versatility for your Hobart mixer or food cutter—the new Power Dicer attachment. Now you can dice vegetables (also firm fruits like apples) and cut French fries as efficiently as with machines costing hundreds of dollars more! You get dicing quality and productivity—you don't sacrifice valuable work space. Two popular-size grids are available: ⅜" and ½"—quickly interchangeable. Smooth dicer lines make cleaning easy.

ATTACHMENT TRAY SUPPORT. Available for use on Hobart mixers and food cutters when using attachments. Attaches and detaches in seconds, stores easily out of the way.

The Hobart Manufacturing Company, Dept. 308, Troy, Ohio

Nationwide Factory-Trained Sales and Service...over 200 offices

Hobart® machines

A Complete Line by the World's Oldest and Largest Manufacturer of Computing Scales, and Food Store, Bakery, Kitchen and Dishwashing Machines

COPYRIGHT, 1961, BY THE AMERICAN DIETETIC ASSOCIATION, Printed in U.S.A.

Second-class postage paid at Mount Morris, Illinois

The Journal of The American Dietetic Association is published monthly by The American Dietetic Association, Mount Morris, Illinois. Neither the Association nor the Editor assumes responsibility for the opinions expressed by authors of papers abstracted, quoted, or published in full in this Journal.

Subscription Rates: $8 per year in advance in the U.S., Canada, and countries of the Postal Union; all other countries, $9 per year in advance. Special rate to undergraduate students and dietetic interns in approved internships, $4 per year in advance. All correspondence concerning Journal subscriptions, orders for copies, or reprints from the Journal, and notices of change of address should be sent to The American Dietetic Association, 620 North Michigan Avenue, Chicago 11, Illinois. Notices regarding change of address should reach the publisher by the *5th of the month before the date of issue* on which the change is to take effect and both old and new addresses *must* be given. Claims for Journals lost in the mail will not be entertained more than six months after the date of the issue involved.

Editorial Correspondence: All articles and notices for publication, general correspondence, and inquiries should be sent to the Editor at The American Dietetic Association, 620 North Michigan Avenue, Chicago 11, Illinois. Manuscripts are accepted for publication on condition that they are contributed solely to the Journal. Copy must be typewritten, double-spaced, and two copies, an original and one carbon, submitted.

Advertising: All correspondence concerning advertising should be addressed to The American Dietetic Association, 620 North Michigan Avenue, Chicago 11, Illinois.

Journal

of The AMERICAN DIETETIC ASSOCIATION

CONTENTS / JUNE 1961 / VOLUME 38, NUMBER 6

Diet and Heart Disease—Facts and Unanswered Questions
THEODORE B. VAN ITALLIE, M.D., AND SAMI A. HASHIM, M.D. 531

Fashioning a Practical Vegetable-Oil Food Pattern— An Experimental Study
HELEN B. BROWN, Ph.D. 536

Meat for Low-Fat Diets
HELEN B. BROWN, Ph.D., AND MARY JEAN SPODNIK 540

Living with the Vegetable-Oil Food Pattern
ALLA P. MEREDITH 543

Attitudes and the Use of Food
CHARLOTTE G. BABCOCK, M.D. 546

Nutrients in California Lemons and Oranges. I. Source and Treatment of Samples
GLENN H. JOSEPH, JESSE W. STEVENS, AND JOHN R. MACRILL 552

Nutrients in California Lemons and Oranges. II. Vitamin, Mineral, and Proximate Composition
JOHN J. BIRDSALL, PHILIP H. DERSE, AND LESTER J. TEPLY 555

Attitudes and Concerns of Professional Groups as Related to Labor Relations
DALLAS M. YOUNG, Ph.D. 560

Current Comment
Strikes Can Be Handled—ROSE RUTCHIK 563

Current Literature 567

Letters to the Editor 594

News Notes 596

OFFICERS 1960-1961

The American Dietetic Association

620 North Michigan Avenue, Chicago 11, Illinois

COORDINATING CABINET

Executive Board

President, DORIS JOHNSON, Ph.D., Grace-New Haven Community Hospital, New Haven 4
President-Elect, ADELIA M. BEEUWKES, Univ. of Michigan School of Public Health, Ann Arbor
Speaker of the House of Delegates, GERTRUDE E. MILLER, VA Center, Los Angeles
Secretary—Chairman, Membership Committee, VIRGINIA F. HARGER, Ohio State Univ., Columbus 10
Treasurer—Chairman, Finance Committee, EVELYN A. CARPENTER, Philadelphia General Hospital, Philadelphia 4

Section Chairmen

Community Nutrition, J. JUNE STEIN, Washington State Dept. of Health, Seattle 4
Diet Therapy, DOROTHY M. KINNEAR, Columbia-Presbyterian Medical Center, New York 32
Education, F. EUGENIA WHITEHEAD, Sc.D., State Univ. of Iowa, Iowa City
Food Administration, ETHEL A. DOWNEY, Miami Valley Hospital, Dayton 9

Public Relations Chairman

MRS. HELEN G. INGERSON, Eastman Kodak Co., Rochester, N. Y.

Council of the House of Delegates

Speaker, GERTRUDE E. MILLER, VA Center, Los Angeles
Speaker-Elect, A. JUNE BRICKER, Ph.D., Am. Home Economics Assn., Washington 9
Delegates of the House of Delegates
MIRIAM E. LOWENBERG, Ph.D., Pennsylvania State Univ., University Park 1961
MRS. BEULA B. MARBLE, 131 Laurel Rd., Chestnut Hill, Mass. 1961
EDITH FAE COOK, Hermann Hospital, Houston 25 1962
MRS. ESTHER G. WOODRUFF, VA Hospital, West Haven 16, Conn. 1962

Delegates-At-Large

LORRAINE G. WENG, National Dairy Council, Chicago 6 1961
MRS. GRACE S. SHUGART, Kansas State Univ., Manhattan 1962
MRS. MARY C. ZAHASKY, Univ. of Oklahoma Medical Center, Oklahoma City 1963

HEADQUARTERS STAFF

RUTH M. YAKEL, Executive Director
DOROTHY J. BATES, Organizational Liaison Director
MRS. MILDRED EGEBERG LEWIS, Advertising and Exhibition Director
SALLIE J. MOORING, Project Director, Food Service Supervisors' Program
MRS. THELMA POLLEN, Public Relations Director
WILMA F. ROBINSON, Dietetic Internship Liaison Director
MRS. DOROTHEA F. TURNER, Editor, JOURNAL
HARRIET E. SANKEY, Managing Editor, JOURNAL
LEONARD D. SMITH, Business Manager
CLARA ZEMPEL, State Activities Director and Program Coordinator

BOARDS AND COMMITTEE CHAIRMEN

Advisory Board

CONRAD A. ELVEHJEM, Ph.D., Univ. of Wisconsin, Madison 6 1961
THEODORE B. VANITALLIE, M.D., St. Luke's Hospital, New York 25 1962
KENNETH B. BABCOCK, M.D., Joint Commission on Accreditation of Hospitals, Chicago 11 1963

Dietetic Internship Board

RUTH W. SPENCER, Area Medical Office, Veterans Administration, Boston 8

Journal Board

CALLIE MAE COONS, Ph.D., U.S. Dept. of Agriculture, Washington 25 1961
JANE C. EBBS, Office of QM General, Department of Army, Washington 25 1961
HAZEL M. HAUCK, Ph.D., Cornell Univ., Ithaca, N. Y. 1961
JANE HARTMAN, 1359 Limit Ave., Baltimore 12 1962
IDA JEAN KAIN, 6696 Glenbrook Rd., Chevy Chase 15, Md. ... 1962
JANICE M. SMITH, Ph.D., Univ. of Illinois, Urbana 1962
GRACE MILLER, Ph.D., Michigan State Univ., East Lansing 1963
GLADYS H. ROEHM, Ph.D., Montana State College, Bozeman 1963
MARGARET L. ROSS, Ph.D., Simmons College, Boston 1963

Committee Chairmen

Career Guidance, MRS. FRANCES W. MARGUT, VA Hospital, Lebanon, Pa.
Disaster Feeding and Civil Defense Planning, MRS. VERA THARP, Illinois Dept. of Public Welfare, Springfield
History of A.D.A., HELEN E. WALSH, Calif. Dept. of Public Health, Berkeley
History of Nutrition and Dietetics, LORRAINE G. WENG, National Dairy Council, Chicago
Nominating, KATHERINE M. HART, Michigan State Univ., East Lansing
Program Planning, RUTH GORDON, Univ. of Kansas Medical Center, Kansas City; KATHERINE M. HART, Michigan State Univ., East Lansing

PRESIDENTS OF STATE DIETETIC ASSOCIATIONS AFFILIATED WITH THE AMERICAN DIETETIC ASSOCIATION

ALABAMA: Janie C. Wilson, Birmingham Baptist Hospital, Birmingham
ALASKA: Mrs. Elaine E. Bard, 129–11th Ave., Anchorage
ARIZONA: Anne Linder, Tuscon Medical Center, Tuscon
ARKANSAS: Mrs. Helen Malone, VA Hospital, North Little Rock
CALIFORNIA: Phyllis M. Ullman, Palo Alto Medical Clinic, Palo Alto
COLORADO: Mary Ruth Bedford, Presbyterian Hospital, Denver 18
CONNECTICUT: Margaret M. McLaughlin, Hartford Hospital, Hartford 6
DELAWARE: Dorothy E. Hayden, VA Hospital, Wilmington
DISTRICT OF COLUMBIA: Maureen A. Doherty, National Institutes of Health, Bethesda, Md.
FLORIDA: Mrs. Rebecca Norfleet, Orange Memorial Hospital, Orlando
GEORGIA: Mrs. Joan S. Kershner, VA Hospital, Atlanta 19
HAWAII: Mrs. Yoko T. Yamauchi, 847–15th Ave., Honolulu 16
IDAHO: Shirley A. Newcomb, Univ. of Idaho, Moscow
ILLINOIS: Constance Hilton, Lutheran Hospital, Moline
INDIANA: Miriam G. Eads, Purdue Univ., Lafayette
IOWA: Rosetta S. Cerny, St. Luke's Hospital, Cedar Rapids
KANSAS: Mrs. Jean S. Bottger, 2027 Meadowmere Ct., Manhattan
KENTUCKY: Virginia S. Colley, Home Demonstration Agent, Court House, Benton
LOUISIANA: Mrs. Emily D. Bullock, Greenwell Springs Hospital, Greenwell Springs
MAINE: Mary E. Morse, 1 Penley St., Augusta
MARYLAND: Margaret E. Graham, 3200 River Dr. Rd., Baltimore 19
MASSACHUSETTS: Marjorie B. Healey, VA Hospital, Bedford
MICHIGAN: Marie P. Fecht, Grand Rapids Health Dept., Grand Rapids 2
MINNESOTA: Angeline Mannick, Univ. of Minnesota Hospitals, Minneapolis 14
MISSISSIPPI: Mrs. Marion Z. Perkins, Jackson Public School Lunch Service, Jackson
MISSOURI: Rosemary Burns, Scruggs-Vandervoort-Barney, St. Louis
MONTANA: Mary E. Loughead, Montana State College, Bozeman
NEBRASKA: Mrs. Helen P. Shuput, Bishop Clarkson Memorial Hospital, Omaha 5
NEVADA: Mrs. Jo Beth Adamson, Southern Nevada Memorial Hospital, Las Vegas
NEW HAMPSHIRE: Alice Van Dyke, St. Paul's School, Concord
NEW JERSEY: Mrs. Betty H. Boutsikaris, St. Barnabas Medical Center, Newark
NEW MEXICO: Virginia E. Ziebol, Univ. of California Scientific Laboratory, Los Alamos
NEW YORK STATE: Sister Anne de Paul, Our Lady of Victory Hospital, Lackawanna 18
NORTH CAROLINA: Mrs. Gwendolyn K. Farrier, 4205 Arbutus Dr., Raleigh
NORTH DAKOTA: Sister Mary Leo Pulskamp, St. Andrews Hospital, Bottineau
OHIO: Ethel A. Downey, Miami Valley Hospital, Dayton 9
OKLAHOMA: Esther Musil, Dairy Council of Tulsa, Tulsa 3
OREGON: Patricia J. Smith, Univ. of Oregon, Eugene
PENNSYLVANIA: Alma McDougall, Pennsylvania State Univ., University Park
PUERTO RICO: Olga Z. Mercado, Public Health Unit, Ponce
RHODE ISLAND: Ruth M. McMullen, Rhode Island Hospital, Providence
SOUTH CAROLINA: Mrs. Adelaide F. Dorsey, Columbia Hospital, Columbia
SOUTH DAKOTA: Sister M. Antoinette, St. Mary's Hospital, Pierre
TENNESSEE: Mrs. Marjorie M. Connell, West Tennessee Tuberculosis Hospital, Memphis 3
TEXAS: Mrs. Jane M. Fisher, Federal Reserve Bank, Houston
UTAH: Ethelwyn B. Wilcox, Utah State Univ., Logan
VERMONT: Susan Merrow, Univ. of Vermont, Burlington
VIRGINIA: Mary E. Kelly, Medical College of Virginia, Richmond
WASHINGTON: Mary Ishii, Univ. Hospital, Univ. of Washington, Seattle
WEST VIRGINIA: Mrs. Alida Thistleton, 8 Foxhill, Parkersburg
WISCONSIN: Dorothy R. Jutton, Ph.D., Univ. of Wisconsin, Madison
WYOMING: Mrs. Rosemary J. Milmont, 1947 E. 18th St., Cheyenne

Diet and Heart Disease—Facts and Unanswered Questions[1]

THEODORE B. VAN ITALLIE, M.D., and SAMI A. HASHIM, M.D.[2]

Department of Medicine, St. Luke's Hospital, and Institute of Nutrition Sciences, New York, New York

APPROXIMATELY THREE years ago, experiments were begun to determine whether everyday diets could be altered so as to reduce serum cholesterol levels and yet remain palatable and acceptable to most individuals. Such experiments were based on earlier findings with semi-purified, formula-type regimens which suggested that by substantially increasing the ratio of polyunsaturated to saturated fatty acids (P:S ratio) in the diet, cholesterol could be lowered.

It is now clear that manipulation of the fatty acid pattern of the diet *is* effective in lowering serum cholesterol in most subjects with cholesterol levels higher than 230 mg. per 100 ml. The change in pattern is effected principally by substituting one form of dietary fat for another in order to increase the P:S ratio. In practice, this change involves a drastically decreased consumption of butter fat and of certain margarines, and a reduced intake of meats from ruminants, such as bovine animals and sheep. At the same time, consumption of poultry, fish, nuts, and plant seed oils is materially increased. The changes in fatty acid pattern obtained with such a diet are indicated in Figure 1, wherein intake of polyunsaturated fatty acids is increased from 15 to 42 per cent while that of saturated fatty acids is decreased from 42 to approximately 15 per cent. The intake of the mono-unsaturated fatty acid, oleic acid, remains about the same. The total dietary fat is reduced from 44 to 36 per cent of calories.

Such diets are acceptable and palatable. The effect of a diet of similar fatty acid composition on serum cholesterol in ninety-seven men of normal weight, ages fifty to fifty-nine years, was determined by Jolliffe *et al.* (1). This study demonstrated the fall in cholesterol by tertiles over a period of six months. The upper third, with cholesterol levels of 270 mg. per 100 ml. and over, dropped an average of 45 mg. per 100 ml. The lower third, with cholesterol values under 230 mg., displayed a decrease averaging 16 mg. per 100 ml. Similar studies performed in smaller groups of subjects have yielded generally similar results (2).

The fact that it is possible and, indeed, feasible to lower serum cholesterol levels by dietary means has had and is continuing to have a tremendous impact on the public, the medical and dietetic professions, and the food industry. The public is being made increasingly aware of the possibly ominous significance of an elevated serum cholesterol level in terms of danger from ischemic heart disease. At the same time, there appears to be decreasing per capita use of butter and hydrogenated products, and increasing use of liquid vegetable oils, such as corn and cottonseed oils.

A number of cookbooks on the subject of fatty acid "control" are now appearing, and the demand for them is great. Recently, several food companies have come out with new margarines with increased P:S ratios. There is increasing interest in the development of cheeses and spreads and commercial products resembling ice cream, all containing appreciable quantities of linoleate.

It is obvious that such developments cannot fail to affect the food industry and, in view of the trends emerging in the American diet, it seems appropriate once more to take stock of our knowledge about diet and heart disease: what we know, and of equally great importance, what we do not know.

Although it has been satisfactorily demonstrated that specified changes in the diet influence serum cholesterol levels, certain problems still clamor for

[1]The researches described in this paper that have been done in the Department of Medicine, St. Luke's Hospital, have been supported in part by the Nutrition Foundation, Inc. Presented at the 43rd Annual Meeting of The American Dietetic Association in Cleveland, on October 21, 1960.

[2]Postdoctoral fellow of the National Heart Institute.

solution. It is impossible in this discussion to deal comprehensively with the many unanswered questions about the relationship between diet and heart disease, but it seems worth while to indicate a few of the areas in which important gaps in our knowledge about this subject remain. Consideration of these matters may serve the useful purpose of dampening excessive enthusiasm and perhaps of directing our attention to the areas where more work urgently needs to be done.

Strokes, Heart Attacks, and Vascular Disease

Are strokes, heart attacks, and peripheral vascular disease all merely manifestations of one underlying disorder—atherosclerosis?

Although it is common practice to use the term "atherosclerosis" as though it described one disease, evidence has been accumulating that in certain countries where clinically manifest coronary artery disease is rare, atherosclerosis of the aorta may be quite common (3). Similarly, American women possess a relative immunity to coronary heart disease during their reproductive years, yet they are not equally immune from atherosclerosis at other sites (4). It is worthy of comment that although coronary heart disease is common in patients with primary hypercholesteremia, this disorder does not seem to predispose to the development of peripheral or cerebrovascular disease (5). Conversely, coronary heart disease is rare among the South African Bantu, a group in whom serum cholesterol levels tend to be very low; yet, cerebral catastrophes occur as frequently among Bantu as among populations with substantially higher levels of cholesterol (6) (Table 1). Thus, coronary heart disease may prove to be a special manifestation of atherosclerosis with its own epidemiology and, perhaps (as shall be discussed later) its own biochemical pathology.

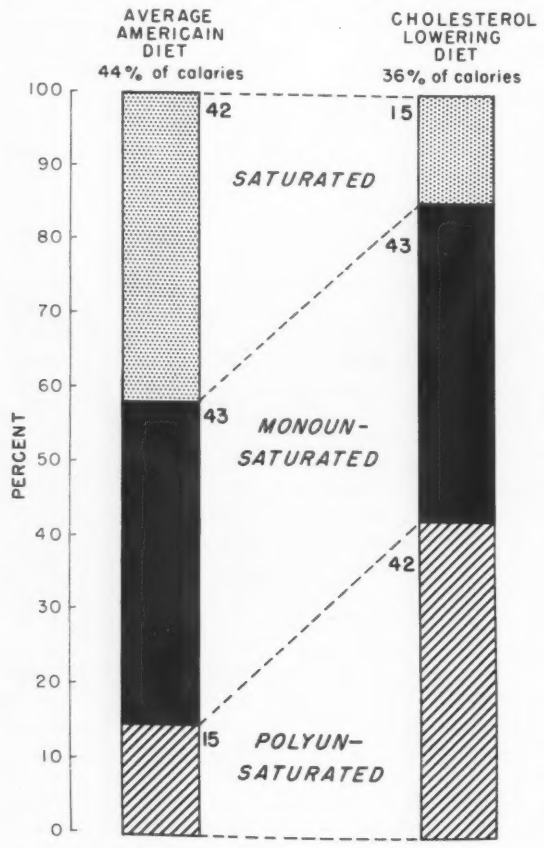


FIG. 1. *Fatty acid pattern of a cholesterol-lowering diet as compared with that of an average American diet.*

Cause of Atheromas

Does chemical analysis of atheromatous plaques from various parts of the body provide any clues concerning the cause of these lesions?

It was demonstrated a number of years ago that the distribution of lipids in early atheromas is roughly similar to that of lipids in plasma. However, it would be helpful to know whether any particular lipid fraction is more "atherogenic" than the others, and whether the lipids found in early atheromatous lesions have the same pattern of fatty acids as in the serum.

Several preliminary reports relating to this question have been published. Tuna and associates (7) have described analyses of aortic atheromas taken from human autopsy material for their content of fatty acids measured by gas-liquid chromatography and other techniques. They showed that all of the various cholesteryl esters, including cholesteryl linoleate, may be deposited in the arterial wall. They considered their analyses to be "compatible" with the notion that lipids tend to deposit indiscriminately, regardless of their fatty acid composition. In Cape Town, Lewis found (8) that the

TABLE 1 Annual mortality rate from coronary heart disease and cerebral vascular disease per 100,000 (adapted from Walker and Grusin [6])

POPULATION OR COUNTRY	SPECIFIC RATE FOR 45-64 AGE GROUP	
	Coronary heart disease	Cerebral vascular disease
Johannesburg, South Africa		
Bantu	47	108
Whites	310	128
U.S.A. (total population)	410	127
Canada	349	105
New Zealand	313	132
England and Wales	205	111
Norway	120	77
Netherlands	128	68
France	60	124
Italy	185	117
Japan	85	271

proportion of saturated and mono-unsaturated fatty acids in cholesteryl esters of atheromatous human coronary arteries was higher than in the circulating plasma.

Quite recent studies from Holland by Böttcher and co-workers (9) have supported the observation that cholesteryl oleate and saturated esters of cholesterol may accumulate preferentially in early atheromatous plaques. However, their analyses also show convincingly that cholesteryl linoleate is an important component of the atheroma (Table 2). Hence, it is possible to support the notion that the more saturated esters of cholesterol preferentially accumulate in atheromatous lesions.

Böttcher *et al.* also have reported (12) results of preliminary analyses of lipids isolated from the aorta, the coronary arteries, and the cerebral arteries. They found a higher proportion of cholesteryl esters deposited in the aorta and cerebral vessels than in the coronary atheromas. In contrast, the coronary atheromas contained a higher proportion of triglyceride.

If these latter results are confirmed, they might help to explain the lack of correlation between coronary heart disease and strokes among the Bantu and the Japanese. However, until more studies are completed, it would be unwise to place too much reliance on these preliminary observations.

Hypercholesteremia—A Fatty Acid Deficiency?

Is the hypercholesteremia induced by our American diet high in saturated fat a manifestation of essential fatty acid deficiency?

On the basis of evidence now available, it seems unlikely that Sinclair's (13) hypothesis attributing "nutritional" hypercholesteremia and atherosclerosis to essential fatty acid deficiency is correct.

Patients with clinical atherosclerosis and elevated levels of serum total cholesterol do not necessarily exhibit a lack of linoleic acid in their serum or fat depots. Moreover, Ahrens *et al.* have shown (14) that formula diets containing as their source of fatty acids the non-essential polyethenoid fatty acids predominating in certain fish oils lower serum cholesterol as effectively as formula diets containing oils exceedingly rich in linoleic acid.

Recently, it has been reported (15) that a synthetic medium chain triglyceride (MCT), made up entirely of saturated fatty acids of chain lengths ranging from C_6-C_{12}, can lower serum cholesterol strikingly when substituted for butter in a formula diet. Such results are of interest since the MCT preparation was devoid of linoleic acid or other polyethenoid fatty acids and had an iodine value of less than 1.0 (that of butter is approximately 40). Although the MCT preparation is highly saturated, its shorter chain fatty acids cause it to have many of the physical characteristics of the natural plant seed and fish oils rich in long chain polyunsaturated fatty acids (Figure 2).

Although it appears that the serum cholesterol level can be lowered by fats virtually devoid of essential fatty acids, the mechanisms are still poorly understood. It is possible that the polyunsaturated fats lower cholesterol by virtue of the effect of unsaturation on their physical properties and not because of some biologic specificity.

Blood Lipid Constituents

What lipid constituent in the blood correlates best with atherosclerosis and coronary heart disease?

Total cholesterol is the serum lipid component that has received greatest attention. The total cholesterol level represents the sum of the free or non-esterified cholesterol and the cholesterol that is esterified with various fatty acids (normally about two-thirds of the serum total cholesterol). Several years ago there was a flurry of excitement over the possibility that separation of the beta-lipoproteins by the ultracentrifuge might permit an improved correlation between some lipoprotein sub-fraction and the presence of coronary atherosclerosis. Unfortunately, such a correlation proved no better than

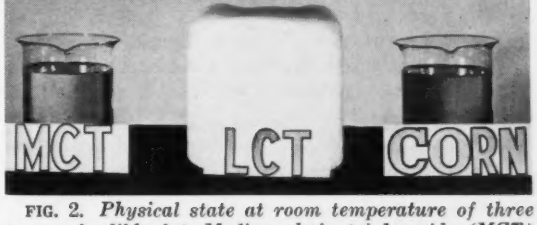


FIG. 2. *Physical state at room temperature of three types of edible fat. Medium-chain triglyceride (MCT) and long-chain triglyceride (LCT). Both have an iodine value of less than one, differing in chain length of constituent fatty acids. Corn oil contains a high proportion of unsaturated long-chain fatty acids (iodine value, 120 to 140).*

TABLE 2 Mean percentages of groups of fatty acids in various lipid fractions of early atherosclerosis (Stage I) of human aortas and of plasma. (Data from Böttcher *et al.* [9], Luddy *et al.* [10], and Dole *et al.* [11])

FATTY ACID GROUPS	CHOLESTEROL ESTERS		GLYCERIDES		PHOSPHOLIPIDS	
	Atheroma	Plasma	Atheroma	Plasma	Atheroma	Plasma
	%	%	%	%	%	%
Saturated	22.9	11.9	42.8	—	59.4	45.9
Mono-unsaturated	39.9	32.7	41.8	—	15.6	21.1
Polyunsaturated	37.2	55.4	15.4	13.6	25.0	22.1

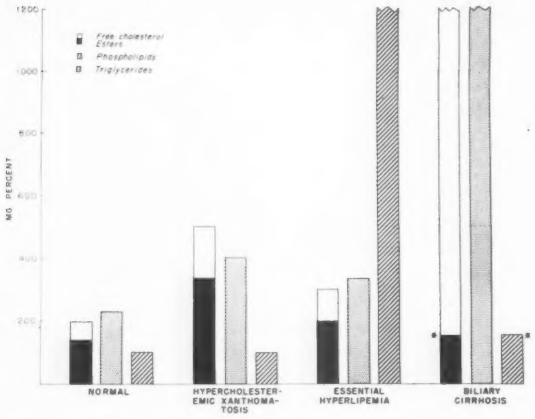


FIG. 3. *Serum lipid patterns in various forms of hyperlipidemia. (*variable)*

that between cholesterol and coronary artery disease. However, more recently, interest has increased in a possible relationship between serum triglyceride levels and coronary heart disease. At least two studies (16, 17) have supported the idea that the triglyceride level may be a good index for the presence of coronary disease.

At the same time, evidence has accumulated to suggest that the serum total cholesterol level *per se* often may be misleading. For example, in biliary cirrhosis, the total cholesterol remains high—sometimes for years—but autopsy studies have failed to disclose increased atherosclerosis in such individuals. In Figure 3, the serum lipid pattern of patients with biliary cirrhosis is compared with that seen in the "normal" individual and in patients with primary hypercholesteremia and with essential hyperlipemia, two conditions associated with a greatly increased risk of coronary disease.

It would seem from the comparison of the various patterns that the factor most associated with atherogenesis is the cholesterol ester level, not the total cholesterol concentration. A high serum phospholipid level also seems to be associated with protection from atherogenesis, as suggested by Ahrens and Kunkel (18). Actually the "colloidal stability" of lipoprotein complexes rather than the total concentration of any particular component of the molecule, such as cholesterol or triglyceride, may prove to be the variable that determines whether atherogenesis will occur.

Effect of Dietary Cholesterol

What is the effect of cholesterol in the diet on serum cholesterol levels?

Not long ago, it was fashionable to prescribe diets low in cholesterol for patients with elevated serum cholesterol. This practice was based on early observations indicating that when cholesterol is fed to rabbits, hypercholesteremia and atherosclerosis result. As cholesterol metabolism in man was studied more intensively, it became evident that the liver normally synthesizes about three times as much cholesterol per day as is consumed in the average diet. It was further learned that an increased intake of cholesterol is likely to result in a proportionate inhibition of cholesterol manufacture. Subsequently, carefully controlled studies by Keys *et al.* (19) and others have suggested that, within wide limits, variations in the cholesterol content of an ordinary diet do not affect serum cholesterol levels to any significant degree—provided other elements in the diet are constant. Such results have encouraged many physicians to abandon use of diets specifically low in cholesterol in treating patients with hypercholesteremia.

One would have thought that the dietary cholesterol ghost had been finally laid; however, two developments have occurred to exhume the problem. First, Beveridge *et al.* have recently reported (20) that the addition of relatively small amounts of cholesterol to formula diets can raise serum cholesterol levels, depending on the nature of the accompanying fat. Indeed, this group attributes the hypercholesteremic effect of butter in part to its content of cholesterol.[3] Second, Connor and associates (22) have studied the effect of adding or subtracting moderate amounts of cholesterol as egg yolk in diets equivalent in amounts and composition of fat. In their studies, the addition of 475 to 1425 mg. cholesterol (the amount present in one to three large eggs) raised cholesterol by 68 mg. per 100 ml. On the other hand, crystalline cholesterol added to the diet in amounts ranging from 1200 to 3600 mg. per day increased the mean cholesterol level by only 18 mg. per 100 ml.

It would seem that the effect of crystalline cholesterol added to the diet cannot be equated with the effect of the cholesterol that occurs naturally in food. It is possible that the differences in response to these two forms of cholesterol relate to considerations of solubility of this sterol in dietary fat. Recently, it has been pointed out (23) that cholesterol is more soluble in the saturated than in the polyunsaturated fats.

In any event, it may become necessary to reshape our judgment about the desirability of including eggs in diets designed to reduce cholesterol levels. Here, again, more investigative work is needed.

Are Serum Lipids Related to Heart Disease?

What solid evidence is available that manipulation of serum lipids can alter the progress of coronary heart disease or other manifestations of atherosclerosis?

The answer to this question can be brief, for

[3]Keys (21) has recently questioned the significance of these results.

there is as yet *no* solid evidence that would permit an answer to be given. Clues are available, but they are not a substitute for established facts.

Summary

An attempt has been made to define briefly what is now established about the effect of diet on serum lipids. In addition, the matter of the relationship between diet and atherosclerosis has been discussed and some of the important questions about which our knowledge remains deficient have been enumerated. In view of the impact which the partial information we now possess is having and will continue to have on American dietary patterns and on the food industry, it seems all the more urgent to close the major gaps in our knowledge as thoroughly and as quickly as we can. Only in this way can we hope to avoid the mistakes that incomplete information so easily begets.

References

(1) JOLLIFFE, N., RINZLER, S. H., AND ARCHER, M.: The anti-coronary club; including a discussion of the effects of a prudent diet on the serum cholesterol level of middle-aged men. Am. J. Clin. Nutrition 7: 451, 1959.

(2) VAN ITALLIE, T. B.: Nutritional research in atherosclerosis — a progress report. J. Am. Dietet. A. 34: 248, 1958.

(3) GORE, I., HIRST, A. E., JR., AND KOSEKI, Y.: Comparison of aortic atherosclerosis in the United States, Japan, and Guatemala. Am. J. Clin. Nutrition 7: 50, 1959.

(4) ROBERTS, J. C., JR., WILKINS, R. H., AND MOSES, C.: Autopsy studies in atherosclerosis 2. Distribution and severity of atherosclerosis in patients dying with morphologic evidence of atherosclerotic catastrophe. Circulation 20: 520, 1959.

(5) GURAVICH, J. L.: Familial hypercholesteremic xanthomatosis: A preliminary report. 1. Clinical, electrocardiographic and laboratory considerations. Am. J. Med. 26: 8, 1959.

(6) WALKER, A. R. P., AND GRUSIN, H.: Coronary heart disease and cerebral vascular disease in the South African Bantu. Examination and discussion of crude and age-specific death rates. Am. J. Clin. Nutrition 7: 264, 1959.

(7) TUNA, N., RECKERS, L., AND FRANTZ, I. D., JR.: The fatty acids of total lipids and cholesterol esters from normal plasma and atheromatous plaques. J. Clin. Invest. 37: 1153, 1958.

(8) LEWIS, B.: Composition of plasma cholesterol ester in relation to coronary-artery disease and dietary fat. Lancet 2: 71, 1958.

(9) BÖTTCHER, C. J. F., WOODFORD, F. P., TER HAAR ROMENY-WACHTER, C. Ch., BOELSMA-VAN HOUTE, E., AND VAN GENT, C. M.: Fatty-acid distribution in lipids of the aortic wall. Lancet 1: 1378, 1960.

(10) LUDDY, F. E., BARFORD, R. A., RIEMENSCHNEIDER, R. W., AND EVANS, J. D.: Fatty acid composition of component lipides from human plasma and atheromas. J. Biol. Chem. 232: 843, 1958.

(11) DOLE, V. P., JAMES, A. T., WEBB, J. P. W., RIZACK, M. A., AND STURMAN, M. F.: The fatty acid patterns of plasma lipids during alimentary lipemia. J. Clin. Invest. 38: 1544, 1959.

(12) BÖTTCHER, C. J. F., WOODFORD, F. P., TER HAAR ROMENY, C. CH., BOELSMA, E., AND VAN GENT, C. M.: Composition of lipids isolated from the aorta, coronary arteries and circulus Willisii of atherosclerotic individuals. Nature 183: 47, 1959.

(13) SINCLAIR, H. M.: Deficiency of essential fatty acids and atherosclerosis, etcetera. Lancet 1: 381, 1956.

(14) AHRENS, E. H., JR., HIRSCH, J., PETERSON, M. L., INSULL, W., JR., STOFFEL, W., FARQUHAR, J. W., MILLER, T., AND THOMASSON, H. J.: The effect on human serum-lipids of a dietary fat, highly unsaturated, but poor in essential fatty acids. Lancet 1: 115, 1959.

(15) HASHIM, S. A., ARTEAGA, A., AND VAN ITALLIE, T. B.: Effect of a saturated medium-chain triglyceride on serum-lipids in man. Lancet 1: 1105, 1960.

(16) ALBRINK, M. J., AND MAN, E. B.: Serum triglycerides in coronary artery disease. Arch. Int. Med. 103: 4, 1959.

(17) ANTONIS, A., AND BERSOHN, I.: Serum-triglyceride levels in South African Europeans and Bantu and in ischaemic heart-disease. Lancet 1: 998, 1960.

(18) AHRENS, E. H., JR., AND KUNKEL, H. G.: The stabilization of serum lipid emulsions by serum phospholipids. J. Exper. Med. 90: 409, 1949.

(19) KEYS, A., ANDERSON, J. T., MICKELSEN, O., ADELSON, S. F., AND FIDANZA, F.: Diet and serum cholesterol in man. Lack of effect of dietary cholesterol. J. Nutrition 59: 39, 1956.

(20) BEVERIDGE, J. M. R., CONNELL, W. F., HAUST, H. L., AND MAYER, G. A.: Dietary cholesterol and plasma cholesterol levels in man. Canad. J. Biochem. & Physiol. 37: 575, 1959.

(21) KEYS, A.: Effect of dietary cholesterol on serum cholesterol in man. Am. J. Clin. Nutrition 9: 126, 1961.

(22) CONNOR, W. E., HODGES, R. E., AND BLEILER, R.: Serum lipids in men receiving high cholesterol and cholesterol-free diets. Circulation 22: 735, 1960.

(23) BRONTE-STEWART, B.: Lipids and atherosclerosis. Fed. Proc. 20, Part 3: 127, 1961.

Cranberries and Codfish

Would you consider cranberries and codfish foods fit for a king?

The early American colonists did, according to a release from the University of Missouri Extension Division. These foods were used back in 1677 to soothe the ruffled feelings of King Charles II of England. The story goes that he was displeased because some of the colonists were coining their own shillings. According to history, in order to sweeten up the English monarch, the colonists sent him 10 barrels of cranberries, along with 3000 codfish.

Fashioning a Practical Vegetable-Oil Food Pattern—An Experimental Study

HELEN B. BROWN, Ph.D.

Division of Research,
The Cleveland Clinic Foundation, and
The Frank E. Bunts Educational Institute,
Cleveland

A practical consideration in feeding human beings, either for experimental, therapeutic, or preventive care hinges on the acceptability of a food pattern. These authors have evolved their practical food pattern from a series of quantitative diet tests and determinations of serum cholesterol. In all cases, menu patterns have been made up with foods commonly available in the market. This practical food pattern can be adapted to the various levels of animal fats and vegetable oils as prescribed by the physician.

IT IS KNOWN that a change in diet can reduce serum cholesterol, but whether this reduction is of value in preventing or treating atherosclerosis in man is not known. An initial step in studying the part played by a low-cholesterol level in preventing atherosclerosis is the development of a practical food pattern to reduce and sustain low serum cholesterol levels in the general population. Such a food pattern must be adaptable for persons of all ages: the active young people, more sedentary middle-aged persons, and senior citizens. The food pattern cannot be restricted by rigid dietary requirements but should be readily adjustable to the demands of daily life. Good, tasty food is necessary for wide acceptance. It must also be accessible in amount and variety for all types of social events and cultural customs.

Research has shown that serum cholesterol is affected more by the type of dietary fat than by the amount of dietary cholesterol present in ordinary foods. Saturated fats tend to raise serum cholesterol concentration; polyunsaturated oils tend to lower it. Fats are a mixture of fatty acids of various degrees of unsaturation. Solid fats, primarily of animal origin, are mostly composed of saturated fatty acids; the only saturated vegetable oils in common use are coconut oil and cocoa butter. Most of the liquid vegetable and fish oils have a large amount of unsaturated fatty acids. Unsaturated fatty acids are chemically reactive and capable of uniting readily with certain elements, such as hydrogen. It is thought that serum cholesterol may be reduced by including large amounts of the most unsaturated fatty acids, the so-called polyunsaturated, in practical diets.

When we began our dietary studies at the Cleveland Clinic, reduction of serum cholesterol had already been demonstrated by replacing most of the animal fats in man's diet with cottonseed and corn oils. This substitution had been achieved in the carefully controlled formula diets of Ahrens *et al.* (2) and of Beveridge, Connell, and Mayer (3), and the semipractical diets of Kinsell *et al.* (4), Malmors and Wigand (5), and Anderson, Keys, and Grande (6). Animal fat and hardened oils compose 85 per cent of the fat in the usual American diet. If the substitution of polyunsaturated vegetable oil for the major portion of this animal fat would reduce serum cholesterol, then a practical and acceptable food pattern might be developed. The common vegetable oils that can be used for this purpose and the food fats that must be reduced or eliminated from the normal diet are listed below.

1. Fats that elevate serum cholesterol
   a. Butter fat
   b. Cocoa butter
   c. Coconut oil
   d. Egg yolk
   e. Hydrogenated shortening
   f. Margarine (most brands)
   g. Meat fat
2. Fats that lower serum cholesterol
   a. Effective agents
      (1) Corn oil
      (2) Cottonseed oil
      (3) Fish oils

[1]Received for publication October 18, 1960.

TABLE 1 Fat content of vegetable-oil food pattern fed to three normal subjects, together with reduction in their serum cholesterol content after eighteen days

TYPE OF FAT	INTAKE					
	Woman		Man No. 1		Man No. 2	
	Weight	Per cent calories	Weight	Per cent calories	Weight	Per cent calories
	gm.		*gm.*		*gm.*	
Animal fat	11.1	5.9	13.7	5.1	16.4	4.9
Vegetable oil*	49.1	26.3	79.9	29.5	75.1	22.9
Basic fat	11.5	6.2	11.5	4.2	11.5	3.4
Total fat	71.7	38.4	105.1	38.8	103.0	31.2
Total calories	1677		2334		2964	
Serum cholesterol redu tion (mg./ 100 ml.)	35		60		60	

*Consisting of 94% cottonseed oil, 15% monostearin, 1.5% distearin, and 30% tristearin, prepared for this study by Dr. Fred H. Mattson, Research and Development Department, Procter and Gamble Company.

(4) Safflower oil
(5) Soybean oil

b. Partially effective agents
(1) Olive oil
(2) Peanut oil

The development of a new food pattern in which polyunsaturated vegetable oils replace animal fat has been our aim for the past three years.

Basic Fat

Our first task was to determine how much fat was actually contained in a low-fat meal. A simple dinner chosen from the hospital menu was found to contain more fat than had been calculated from standard tables. Analysis of low-fat foods, such as bread and vegetables in the dinner, revealed that they were the source of this excess fat, not so much because of fats added in food preparation but because of the natural fat content. To determine the amount of excess fat, we performed laboratory analyses for twenty-eight days on three meals a day quantitatively prepared in the research kitchen. The low-fat group—fruits, vegetables, cereals and grains, low-fat fish (1 per cent or less), and skim milk—supplied an average of 11.5 gm. fat each day. We have called this minimum amount of fat, "basic fat," because it was always present in low-fat foods. Basic fat is not usually accounted for in calculating the fat content of a diet except in quantitative studies; however, it is inevitably present in any food plan composed of ordinary foods.

Experimental Regimens

A practical food pattern evolved from a series of quantitative diet tests. Normal volunteers ate all meals from our research kitchen for eighteen-day periods, and serum cholesterol was determined at frequent intervals. Weighed portions of individually prepared foods were served; the fat content of these foods was determined in the laboratory. The research kitchen is not an institutional kitchen, but is like that in a home; the menus, foods, and recipes are those the homemaker is accustomed to, and the foods are prepared in the usual ways.

Customary foods were served on the test projects. Animal fat was usually limited to that present in meat. The problem of serving meat twice a day and yet keeping meat-fat low was solved by selecting meats from low-fat lists and preparing them by low-fat cookery (7).

In our test diets, we used a slightly modified cottonseed oil not available on the market, which was mixed for our laboratory and which proved to be an excellent shortening. It emulsifies with nonfat milk solids to make filled milk, cream, ice cream, and a spread. The oil was also used in usual ways, for salad dressing, as seasoning in sauces and gravies, and in cooking vegetables and meats, and in casserole dishes.

Our experimental subjects in each test were four to six normal men and women employees of the Cleveland Clinic—medical fellows, staff members, and research personnel—who carried on their usual activities during the test period. In the first few tests, each subject was supplied with food at a constant caloric level sufficient to maintain his weight. In later tests, a variety of food choices was offered, and the individual's caloric intake differed from day to day as in ordinary life. Body weight remained within the 2-lb. variation allowed during the test. The amounts and types of fat used and the accompanying drops in serum cholesterol levels are given in Table 1. These results are typical of the forty volunteers who participated in the tests.

The first test was a vegetarian diet with our modified cottonseed oil as the only fat present except, of course, for basic fat. Variety was obtained by mimicking meat-containing dishes as much as possible. This diet demonstrated that the cottonseed oil, without any meat fat, reduced serum cholesterol in normal, active persons.

In the next experiment, 4 per cent of the calories

TABLE 2 **Fat intake of one man during three experimental regimens* in which sources of fat were varied**

SOURCE OF FAT	FAT INTAKE					
	Vegetarian diet		Vegetable-oil diet with meat fat		Vegetable-oil diet with meat, egg, butter	
	Weight	Per cent calories	Weight	Per cent calories	Weight	Per cent calories
	gm.		*gm.*		*gm.*	
Animal fat						
Meat			12	4	13	4.0
Egg					5	1.5
Butter					1	0.5
Total	0		12	4	19	6
Modified cottonseed oil†	96	34	98	32	104	30
Basic fat	11	4	12	4	11	3
Total calories	2550		2720		3080	
Total fat	107	38	122	40	134	39
Serum cholesterol reduction (mg./100 ml.)	62		65		65	

*These tests were conducted at various times during a year, so that caloric intake reflects differences in activity. During tests, body weight was maintained within 2 lb.

†See text for description.

as meat fat were included in the diet in addition to the vegetable oil. Meat was served once a day, at dinner; lunch contained low-fat fish or dry cottage cheese. The same persons served as subjects in these two tests. Reduction of serum cholesterol was similar on both food patterns. Since then, more animal fat has been served, amounting to a daily intake of about 20 gm. or approximately 6 per cent of calories as meat, eggs, and Cheddar cheese. The same reduction in serum cholesterol was observed with this increase in the amount and variety of animal fat. Table 2 shows the three dietary patterns and the reduction in serum cholesterol achieved by one of the volunteers who participated in all three tests.

These tests have proved that the vegetable-oil food pattern as served from the research kitchen effectively reduced serum cholesterol levels in these normal individuals. Further, it was nutritionally adequate and provided 12 to 13 per cent of the calories as protein and 30 to 40 per cent as fat. The total fat calories consisted of 3 to 6 per cent as animal fat, 20 to 30 per cent as vegetable oil (cottonseed), and 2 to 6 per cent as basic fat. In other studies, we have shown that the vegetable-oil food pattern is also effective in patients with high serum cholesterol levels (8).

All filled milk products and a spread can be made in the home. When modified cottonseed oil is unavailable, commercial salad oils may be used successfully in all products except the spread. Several margarines largely composed of unhydrogenated vegetable oil are now on the market; their ability to reduce blood serum cholesterol has not yet been determined.

The control of dietary fats in patients with heart disease is a recent development in therapeutics. Classification of dietary fats according to the degree of unsaturation and their effect on serum cholesterol level is also comparatively new. Low-fat diets, of course, have been prescribed for some time. The dietitian's responsibility in this field is to know the kind, source, and amount of fat in various foods. The fat content of the day's food supply should be estimated for the patient with atherosclerosis as carefully as carbohydrate for the patient with diabetes or sodium for the patient with edema. Eventually, we may find that fat in other therapeutic diets should be examined critically. Certainly, the type of fat in the diabetic diet is important; it may also be important for patients on ulcer diets or even certain high-protein diets.

Above all, the dietitian responsible for planning and preparing this type of therapeutic diet must shape a flexible food pattern that is adaptable to individual needs and desires. Otherwise, the hospital tray is returned untouched, the dietary instruction ignored, and a treatment, important to the patient's recovery and health, ineffective.

References

(1) Central Comm. for Medical A[illegible] Program, Am. Heart Assn.: Dietary fat and its relation to heart attacks and strokes. Circulation 23: 133, 1961.

(2) Ahrens, E. H., Jr., Hirsch, J., Insull, W., Jr., Tsaltas, T. T., Blomstrand, R., and Peterson, M. L.: The influence of dietary fats on serum-lipid levels in man. Lancet 272: 943, 1957.

(3) Beveridge, J. M. R., Connell, W. F., and Mayer, G. A.: Dietary factors affecting the level of plasma cholesterol in humans: the role of fat. Canad. J. Biochem. & Physiol. 34: 441, 1956.

(4) KINSELL, L. W., MICHAELS, G. D., PARTRIDGE, J. W., BOLING, L. A., BALCH, H. E., AND COCHRANE, G. C.: Effect upon serum cholesterol and phospholipids of diets containing large amounts of vegetable fat. J. Clin. Nutrition 1: 224, 1953.

(5) MALMROS, H., AND WIGAND, G.: The effect on serum-cholesterol of diets containing different fats. Lancet 273: 1, 1957.

(6) ANDERSON, J. T., KEYS, A., AND GRANDE, F.: The effects of different food fats on serum cholesterol concentration in man. J. Nutrition 62: 421, 1957.

(7) BROWN, H. B., AND SPODNIK, J. P.: Meat for low-fat diets. J. Am. Dietet. A. 38: 540, 1961.

(8) BROWN, H. B., AND PAGE, I. H.: Lowering blood lipid levels by changing food patterns. J.A.M.A. 168: 1989, 1958.

BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

John James Rickard Macleod—September 6, 1876–March 17, 1935

The dietitian who plans diabetic diets and guides patients in the use of the Exchange Lists should recall with gratitude the work of Banting and Macleod who brought promise of life to the diabetic patient through their work on insulin.

John James Rickard Macleod, son of the Reverend Robert Macleod, was born September 6, 1876, at Cluny in Perthshire, Scotland. His early education was at Aberdeen Grammar School, and in 1893 he entered Marischal College of the University of Aberdeen to study medicine. He graduated in 1898 with the degrees of Bachelor of Medicine (M.B.) and of Surgery (Ch.B.) with honors. He was awarded the Anderson Traveling Fellowship and went to Germany where he spent a year in the Physiological Institute of the University of Leipzig and worked on purine metabolism. On his return to England, he was appointed Demonstrator in Physiology, and two years later, Lecturer in Biochemistry at the London Hospital Medical College.

Then in 1903 he came to the United States as Professor of Physiology at Western Reserve University, Cleveland, where he remained until 1918 when he went to McGill University, Montreal, as Professor of Physiology. It was at Western Reserve that Macleod began his studies on the metabolism of carbohydrates. By 1921, he had published thirty-seven papers on various aspects of carbohydrate metabolism, including a series of twelve papers on "Studies in Experimental Glycosuria" in the *American Journal of Physiology*. Macleod was one of the leading investigators in this field; thus it was natural that Banting should seek Macleod's help when he conceived his plan for trying to obtain active preparations of the pancreatic hormone for the treatment of diabetes. With facilities provided in Macleod's laboratory and the young biochemist, Charles Best, assigned to help him, Banting demonstrated that insulin could control the blood sugar in diabetes but much work yet remained to be done. Macleod, aided by J. B. Collip, tackled the problem of preparing a pure extract safe for use with human beings, and the careful study of its reactions and metabolic effects. The original idea for insulin was Banting's, but Macleod and many others, each with a special ability, made up the team needed to bring to completion the preparation of purified insulin for human use. For this oustanding contribution Banting and Macleod received the Nobel Prize in Physiology and Medicine in 1923; Macleod shared his prize with Collip and Banting his with Best.

Ten years later (1928), Macleod returned to his alma mater, the University of Aberdeen, as Regius Professor of Physiology. As a teacher and director of research, he was outstanding; students were attracted to his laboratory and his lectures appealed because of their clarity and interesting presentation. He was a clear, critical thinker, cautious but definite once he had the experimental evidence; honest and straight forward and at times even brusque. He could, nevertheless, be tactful when the occasion required it. He demanded exactness and honesty in all who worked with him and in return he gave his friendship, loyalty, and enthusiasm.

Macleod's contributions to teaching and research won him many recognitions. He was elected a Fellow of the Royal Society of Canada, of London (1923), and of Edinburgh (1932); and received honorary Doctor of Science degrees from Universities of Pennsylvania (1928) and Toronto (1932); and Doctor of Laws from Aberdeen (1928) and Western Reserve (1928). He was President of the American Physiological Society (1922) and of the Royal Canadian Institute (1925). His earliest research paper in 1899 dealt with the phosphorus content of muscle. Between that time and 1933, he published two hundred papers, alone or as co-author. He also wrote eleven books and monographs, including *Insulin and Its Use in Diabetes* (with W. R. Campbell, 1925), *Carbohydrate Metabolism and Insulin* (1926), and *Fuel of Life* (1928).

Macleod was married to Mary McWalters; they had no children.

REFERENCES: Henderson, V. E.: John James Rickard Macleod, Science 81: 355, 1935; Sollman, T.: John James Rickard Macleod, Physiologist, Sept. 6, 1876–March 17, 1935. Scient. Monthly 41: 89, 1935; Cathcart, E. P.: John James Rickard Macleod 1876-1935. Obituary Notices of Fellows of the Royal Society of London, 1932-1935. Vol. 1: 585, 1935.—*Contributed by Neige Todhunter, Ph.D., Dean School of Home Economics, University of Alabama, Tuscaloosa.*

Meat for Low-Fat Diets[1]

HELEN B. BROWN, Ph.D., and MARY JEAN SPODNIK

Division of Research, The Cleveland Clinic Foundation, and The Frank E. Bunts Educational Institute, Cleveland

A PROBLEM OF some persons following a low-fat diet while living at home is the monotony of food selection and preparation. Craving for fat itself diminishes after a time, and appetite eventually is satisfied by adjusting the amount of food and frequency of eating. A version of the low-fat diet suggested by Wilkinson (1) provided 30 gm. or 1 oz. fat a day, eaten at one meal. The practical value of this scheme lies in its provisions for one normal, palatable meal a day, thus making the other two meals somewhat tolerable.

The Food Pattern

During the last two and a half years, we have been working with practical food patterns providing minimum amounts of animal fat (2). At first, we used the Wilkinson scheme successfully, but soon found that 30 gm. fat could be distributed among the three meals a day and provide palatable foods for each meal. For some persons, such liberalization of food choice is important in their adherence to the diet. Dietary fat was curbed by the usual choice of low-fat foods, with special attention centered on low-fat meat selection and preparation. In this way, total fat was limited to less than 30 gm. a day, meat fat providing about 15 gm.; the remainder, about 10 gm., was chosen from a list of foods, any one of which could be eaten each day. Consequently, realistic amounts of meat and fish were allowed and other fat-containing foods were not completely prohibited.

Specific suggestions for foods providing approximately 10 gm. fat, one item to be chosen each day in addition to the meat allowance, were: 2 oz. additional meat, one egg, 3 strips bacon, 1 oz. cheese, 2 tsp. margarine, 2 tsp. salad oil, or 1 serving of simple desserts, such as pudding, plain cake, or cookies, ½ c. ice cream, or even a 1-oz. chocolate bar occasionally. By this means, the patient could satisfy his craving for specific foods and still keep within the 30-gm. fat restriction. This list of choices permits variety for breakfast, allows a good packed lunch to be carried, and, combined with proper meat selection, permits eating out.

The particular emphasis in our dietary recommendations, however, has been on the control of fat from animal protein sources. For this purpose, the kinds of cooked meat or fish, and cheese have been divided into four lists, according to the amount of fat provided by a 100-gm. serving: 1 gm. fat or less; 5 gm. or less; 10 gm.; and 15 gm. Low-fat fish, including shell fish and canned, water-packed varieties, and dry cottage cheese provide less than 1 gm. fat per serving and are not counted in the daily supply of fat. Varieties of fish containing somewhat more fat than those in the first group and breast of chicken without skin are included in the list providing 5 gm. fat or less.

The core of the low-fat diet is the meat group providing 10 gm. fat. This list includes lean cuts of beef, lamb, veal, and poultry. The "15-gm. meat fat" list includes some of the fatter cuts of beef, lean ham, and fresh pork loin. Choice of meats from these lists gives a patient considerable leeway. If he chooses a meat providing 5 gm. fat for lunch, then he may have one from the "10-gm. fat" list for dinner. If he is to have meat providing 15 gm. fat for dinner, then he chooses a luncheon serving from the "less-than-1-gm. fat" list.

These lists were originally compiled from the food values published by Bowes and Church (3) and were later modified by the "lean-plus-marbled" meat fat figures reported by Leverton and Odell (4). The validity of these lists has been substantiated by an analysis of meats prepared by low-fat cookery in our research kitchen and analyzed in our own laboratory. The results of these analyses are reported here.

Procedures

Two kinds of meat samples were analyzed:

(a) Samples of individual servings were collected during eighteen-day test periods in which weighed foods from our research kitchen were served to volunteer subjects. The entire meat supply was pur-

[1]This study was supported in part by a Research Grant (H-3072) of the National Heart Institute, National Institutes of Health, Bethesda, Maryland; Irvine H. Page, M.D., principal investigator. Received for publication June 8, 1960.

TABLE 1 **Fat content of meat, raw and cooked by low-fat cookery methods***

MEAT	NUMBER OF SAMPLES	SERVINGS PER SAMPLE	SIZE OF SAMPLE		FAT		
			Raw	Cooked	Cooked		Raw (average)
					Average	Range	
			gm.	*gm.*	%	%	%
Beef							
Corned beef, fresh	7	1–3	—	50–100	10.6	3.2–15.4	—
Cubed steak	7	1–3	150–480	95–302	6.8	5.0–10.3	5.0
Dried	1	2	—	123	5.7	—	4.6
Heart	2	1	—	106–138	4.4	3.5– 5.2	3.5
Liver	5	1–2	75–300	51–236	6.9	5.1– 9.2	5.0
Round steak	18	1–11	100–1320	70–1139	5.6	3.6– 7.8	4.1
Sirloin tip, roast	4	3–4	—	339–359	10.8	8.8–15.6	—
Smoked	3	1–2	—	90–110	7.1	6.4– 8.1	—
Tenderloin	10	1–3	120–450	76–307	8.4	5.1–14.0	5.9
Frankfurters	4	3–6	—	104–250	29.8	26.2–35.3	—
Lamb chops, shoulder	4	1–3	120–360	63–208	11.6	6.0–19.5	6.9
Poultry							
½ fryer	12	1–6	440–1320†	101–727	8.7	5.2–13.7	—
With skin	4	—	—	—	10.5	5.2–13.7	5.8
Without skin	8	—	—	—	7.9	5.8–12.5	4.1
Turkey, meat only	1	1	—	107	4.8	—	—
Veal steak	12	1–3	120–450	76–365	2.9	1.3– 4.7	1.8

*Analysis of individual-size 1 samples, edible portions. †With bone and skin.

chased for each test period at one time. A single serving of meat was prepared for analysis along with the meat to be eaten by the subjects. Servings of each meat cut used throughout the test were pooled and analyzed. They are listed in Table 1 as single meat samples. Results in Table 1 represent the fat content of meats bought in 1958 and '59.

(b) Meats were purchased in retail markets in amounts of at least 1 lb. at the same time as follows: one sample from a national chain store, the second from a popular local chain store, the third from a high-class local market.

These meats were prepared according to our directions for low-fat cookery. All excess fat was cut off before cooking. The samples were broiled, roasted, baked, or boiled with the use of a rack for proper drainage as necessary. No meat was fried. Our other suggestions for low-fat meat cookery in the home include browning meat under the broiler without additional fat and refrigerating soup and gravy stock to solidify fat, thus aiding in its removal.

The amount of cooked sample indicated in the tables was ground in a blender. Weighed samples,

TABLE 2 **Fat content of meat with low-fat cookery***

MEAT	NUMBER OF SAMPLES	RAW WEIGHT TRIMMED	COOKED EDIBLE PORTION	FAT CONTENT		
				Cooked		Raw
				Average	Range	
		gm.	*gm.*	%	%	%
Beef						
Porterhouse steak	3	234–570	133– 341	10.5	9.9–11.4	7.1
Round steak	4	392–562	243– 358	4.5	4.0– 6.2	3.0
Round, ground in store	4	429–692	288– 495	15.1	13.0–17.9	10.5
Sirloin tip, roast	3	1054–1645	725–1089	6.6	5.0– 7.5	4.7
Sirloin steak	3	482–625	274– 357	8.6	6.2–10.9	5.3
Stew	3	344–479	214– 279	10.7	6.3–13.2	6.5
Tenderloin	2	445–485	306– 311	4.6	3.3– 6.0	3.6
Lamb						
Chops, loin	3	377–497	193– 217	7.8	5.1– 9.8	4.8
Leg roast	3	1251–1568	565– 816	6.5	5.5– 8.4	4.3
Pork chops, loin	5	383–607	158– 299	14.6	9.3–18.5	6.8
Chicken, fryer (without ksin)						
Breast		558–862	260– 470	3.5	2.3– 4.4	2.0
Legs	3	831–956	342– 418	7.4	6.5– 8.3	4.3
Average				5.4		3.1
Veal						
Chops, loin	3	279–492	148– 224	5.0	4.3– 5.8	2.9
Steak	3	328–453	205– 242	2.4	2.1– 2.9	1.7

*Analysis of large samples.

TABLE 3 Fat content of meat prepared by low-fat cookery compared with that of "lean-plus marbled" meats reported by Leverton and Odell (4) and by Bowes and Church (3)

MEAT	LOW-FAT COOKERY	"LEAN-PLUS-MARBLED" (4)	BOWES AND CHURCH (3)	
			Cooked weight	Raw weight
	% cooked weight	*mean % cooked weight*	%	%
Beef				
Corned	10.6	22.2 (brisket)	12.0 (canned)	25.0
Round steak	5.0*	8.7	13.0	—
Round, ground in store	15.1	12.5	14.2	—
Sirloin tip	8.7*	6.7	22.0 (steak)	—
Tenderloin	6.5*	12.5	—	—
Frankfurters	29.8	—	20.0	—
Lamb				
Chops, loin	7.8	11.9	—	—
Chops, shoulder	11.6	15.7	16.8	—
Leg, roast	6.5	8.3	19.0	—
Pork chops, loin	14.6	11.3	26.0	—
Chicken				
½ fryer	8.7	—	—	7.2
Breast	3.5	—	—	0.5
Legs	7.4	—	—	2.7
Veal				
Chops, loin	5.0	6.7	11.0	—
Steak	2.6*	4.8	—	—

*Value given is an average of those reported in Tables 1 and 2.

in triplicate, were analyzed according to the Official Methods of Ananlysis of the Association of Official Agricultural Chemists (5).

Results—Fat Content of Meat

Results of the fat analyses of meats are given in Tables 1 and 2. The fat content of the cooked sample is expressed both as per cent of cooked weight and as per cent of raw meat. For practical use, the fat content of cooked portions is of value, yet for quantitative studies, the fat content of the cooked portion expressed in terms of the raw weight is also useful.

The fat content of "low-fat" cooked meats is compared in Table 3 with the "lean-plus-marbled" cuts (4) and the values given by Bowes and Church (3). These values indicate that trimming the obviously fatty portions from meat eliminates the major portion of the fat. This assures the dieter that he may eat properly selected meat cuts in restaurants, knowing that he is keeping within the daily fat allowance if he trims his meat properly. At home, trimming of meat before cooking and allowing fat to drain during cooking further reduced fat by an average of 4 gm. per 100-gm. serving below that in the portion trimmed after cooking. This reduction allows for a larger portion or a greater choice of other fat-containing foods.

Variation in fat content of individual meat servings prepared for tests over a period of two years reflects not only differences in fat content of various sections of a single cut of meat but emphasizes differences in fat content of the same cut from time to time. These differences were especially noticeable in tenderloin, roast sirloin tip, and lamb chops.

A few discrepancies were found between analyzed fat content and previously accepted values. Frying chickens, as bought in Cleveland, are higher and more variable in fat than indicated in the tables of Bowes and Church, undoubtedly due to changes in marketing practices over the years. The few samples of frankfurters analyzed indicate a high and variable fat content, so that their regular use in low-fat diets should be limited. The high fat content (15.1 per cent) in round steak ground in the store, as supplied by three different markets, compared with the fat content (5.0 per cent) of round steak ground and prepared in the research kitchen should also be noted.

Summary

Variety can be given a low-fat diet by proper selection and preparation of foods. Fat provided by meats can be limited to 15 gm., yet with two 3-oz. servings of meat a day still allowed. An additional daily allowance of 10 gm. fat may be chosen from any one of a variety of foods that cater to individual taste.

References

(1) WILKINSON, C. F., JR.: Spaced fat feeding: a regime of management for familial hyperlipemia. Ann. Int. Med. 45: 674, 1956.

(2) BROWN, H. B., AND PAGE, I. H.: Lowering blood lipid levels by changing food patterns. J.A.M.A. 168: 1989, 1958.

(3) BOWES, A. DEP., AND CHURCH, C. F.: Food Values of Portions Commonly Used. 8th ed. Philadelphia: A. deP. Bowes, 1956.

(4) LEVERTON, R. M., AND ODELL, G. V.: The Nutritive Value of Cooked Meat. Okla. Agric. Exper. Sta. Misc. Pub. MP-49, 1958.

(5) Official Methods of Analysis. 8th ed. Washington: Assn. Off. Agric. Chemists, 1955, p. 229.

Living with the Vegetable-Oil Food Pattern[1]

ALLA P. MEREDITH

Division of Research,
The Cleveland Clinic Foundation, and
The Frank E. Bunts Educational Institute,
Cleveland

THE VEGETABLE-OIL food pattern developed in the Division of Research of The Cleveland Clinic Foundation was evolved quantitatively through various stages of testing in the research kitchen. After it was found to be effective in lowering blood lipid levels, both in patients with hyperlipemia and in normal persons, it was adapted to the needs of patients living at home, working, or going about their regular daily routines.

The vegetable-oil food pattern is based on the dietary principles of limiting the intake of saturated fats to about 15 gm. daily, and of increasing intake of polyunsaturated vegetable oils to prescribed amounts ranging from 60 to 105 gm. daily, depending on the individual's energy requirements. Some of the patients have been adhering to this type of dietary regimen for as long as three years, having learned to adjust it to their particular everyday living conditions. What have been their experiences, how have they managed, and what problems have confronted them? Before answering these questions, let us consider the patients themselves and the procedures we have used.

The Subjects

The patients are men and women ranging in age from twenty to sixty-five years who have been referred by their physician. Most have high blood lipid levels, and many have cardiovascular disease. They are a selected group, highly motivated to lower their blood lipid levels or to maintain low levels. Also, most of them are, according to their referring physicians, reliable persons who can be expected to cooperate and to remain with the study for some time. They are men and women in business and the professions and homemakers.

Procedures

All patients are interviewed by appointment. During the first interview, a dietary history and a general concept of the patient's living habits are obtained for use in planning his dietary regimen. At this time also, the purpose of the study and his participation in the research program is discussed with each patient. At the second interview, dietary instruction is given, and for this appointment wives or persons responsible for food preparation at home are invited. The prepared instructional material is discussed in detail and is modified to fit the patient's nutritional needs and daily living requirements. The materials include a folder describing the vegetable-oil food pattern, suggested ways of incorporating vegetable oil in the diet, hints for selecting foods from restaurant menus, and a book of recipes[3] for low-fat and vegetable-oil cookery as developed in the research kitchen. On the average 1½ hr. are required for the initial instruction; additional instruction and adjustments are a part of nearly every conference. Patients are told that the way in which they manage the diet from day to day is an important part of the research and that we need all the information they can give us about their success, difficulties, and failures.

Follow-up interviews occur about once a month. Each time, weights are recorded and blood samples are drawn for blood lipid determinations. Informal discussions during the follow-up conferences include questions about typical meal patterns for the past month, social affairs attended, out-of-town trips,

[1]This work is supported in part by a Research Grant (H-3072) of the National Heart Institute. Presented at the 43rd Annual Meeting of The American Dietetic Association in Cleveland, on October 18, 1960.

[2]The author is a nutritionist on loan to The Cleveland Clinic Foundation from Region V, Heart Disease Control Program, Division of Special Health Services, Public Health Service, Washington, D.C.

[3]Developed by Mary Jean Spodnik, dietitian formerly in charge of the research kitchen.

and dietary management under such circumstances. Periodically, a 24-hr. recall of the diet is obtained, including variations in foods eaten during the previous week, especially meats or main dishes, desserts, and foods in which vegetable oil is used. Patients often keep records of dietary intake for four or five consecutive days.

One man who travels records the meals eaten on trips and brings the record along to refresh his memory. Some men can recall breakfast and lunches selected from restaurant menus but are unable to give an account of the fat in the evening meals eaten at home. Usually this is the meal in which the greatest portion of vegetable oil is used in prepared dishes. Wives then give us the information.

Typical Home Management

The following way of managing the vegetable-oil food pattern is typical. Animal fat is kept to about 15 gm. daily by the correct choice and preparation of meats, and by the use of low-fat foods, such as dry cottage cheese[4], fruits, vegetables, plain breads, cereals, and skim milk. Vegetable-oil intake is increased through the use of a special table spread[5], vegetable-oil milk and cream, salad dressings, and foods prepared with oil or these products. The milk and cream are made at home using nonfat milk solids, water, and vegetable oil mixed in a blender.[6] Casserole dishes, sauces, cakes, pies, and cookies are excellent carriers of vegetable oil and often are served to the entire family.

Breakfast usually consists of fruit, cereal with skim milk, toast with vegetable-oil spread, and coffee, black or with vegetable-oil cream. This type of meal contains practically no animal fat.

Not many of the employed patients are able to eat their noon meals at home. Lunch is often a restaurant meal of broiled fish or chicken or cottage cheese, a baked potato, a tossed or gelatin salad with salad dressing, plain rolls, fruit or gelatin, skim milk, tea, or coffee. A packed lunch brought from home is convenient for some patients. Typical foods are chipped beef, tuna or chicken salad sandwiches, fruit, and low-fat or vegetable-oil cookies. Skim milk, tea, or black coffee purchased near by may complete the meal.

For dinner, the choice and amount of meat depends on the amount of animal fat included in the noon meal. For example, if such low-fat foods as dry cottage cheese or shrimp were luncheon choices, and if no other animal fat were eaten, a portion of meat containing as much as 15 gm. fat could safely be selected in the evening. However, if 5 gm. animal fat were eaten at noon, then only 10 gm. are allowed for dinner. Also, if the choice is a low-fat meat, such as veal, a larger portion can be eaten than if pork loin is selected. Patients are guided by a sheet listing meats[7] according to the fat content per 3-oz. cooked portion. Eggs are allowed as meat substitutes.

All meats are trimmed of visible fat before cooking, and low-fat cooking methods are used. Vegetables are seasoned with oil or with the vegetable-oil spread, which is also used on bread. Salads are served with vegetable-oil salad dressing. Low-fat desserts—fruit, gelatin, angel cake, or sherbet—are most common. Patients who are not overweight may have cakes, pies, and cookies prepared with vegetable oil.

Cook-outs and picnics are popular in the summer, and the outdoor grill is excellent for low-fat meat cookery. A cheese dip made with dry cottage cheese softened with skim milk, seasoned with herbs, and whipped in a blender is a favorite snack when served on Melba toast.

Since the vegetable-oil food pattern requires a large amount of oil, patients find it helpful to keep a record of the amount used each day until they have somewhat established their own pattern for including the oil in foods. If, at the end of the day, they are short of the prescribed amount, a bedtime snack of crackers and spread or vegetable-oil milk will help to make up the deficit, or they may carry over the amount lacking to the next day.

Indiscretions in Dieting

While some patients, as far as can be determined, follow the diet with almost fanatic zeal, many report violations at one time or another. These violations are usually minor or infrequent and are of little or no consequence over a week's time, except during vacations or extended trips.

Patients who appreciate the research aspects of the study readily report digressions from the recommended diet. When asked about a trip to New York, as to whether it was for business purposes or a vacation, the patient replied: "It was a business trip, but I took a vacation from the diet. You see, my wife wasn't along." A woman unable to resist the "cream-rich" refreshments served at her club meetings often reported these as violations of her diet, and a man who enjoys Cheddar cheese with beer three or four times a week freely admitted this indulgence. A young homemaker working in an office had been accustomed to using commercial

[4]Dry cottage cheese may be "dressed up" by mixing with skim milk and refrigerating overnight. When the curd is soft, it may be flavored as desired with buttermilk, spices, vegetables, and so on. Vegetable oil or a special spread may be blended in for a creamy consistency.

[5]Supplied to patients by the Cleveland Clinic.

[6]Cream cheese (Philadelphia style) may be made by mixing in a blender: ½ c. dry cottage cheese curd, 1 Tbsp. nonfat milk solids, 1 Tbsp. water, and ½ tsp. salt. Flavor to taste.

[7]Meats are divided into four categories, according to fat content of a 3-oz. serving: 1 gm. fat or less; 5 gm. fat or less; 10 gm. fat; and 15 gm. fat.

mixes, frozen pot-pies, and other "brown-and-serve" dishes. Having to start from scratch, so to speak, with food preparation has been a great inconvenience to her.

On the other hand, one patient proudly reported how well his wife managed the vegetable-oil food pattern for various meals and even for parties when there was a wedding in the family. He said: "I was surprised how easily the low-fat and vegetable-oil foods fit into cocktail snacks. We used some suggestions from the recipe book, but my wife just made up most of them."

Some women have tackled the job with the spirit of adventure and have developed new recipes or have modified their old favorites. One said that she felt like a bride learning to cook new dishes and thoroughly enjoyed the renewed experience.

A man whose wife is an invalid and who therefore cooks the meals himself, discovered that frozen pre-cooked dinners solve his culinary problems. He opens the package, removes the pat of butter, and adds the vegetable-oil spread before heating. An analysis of several of these dinners, as purchased, revealed that the total animal fat in most of them did not exceed 15 gm. With the proper choice of foods for breakfast and lunch, his frozen dinners are satisfactory selections.

As would be expected, those who follow the diet with the greatest diligence usually eat at home. Dedicated wives take an interest in preparing acceptable meals and use vegetable-oil cookery not only for their husbands, but to some extent for the entire family. Patients who travel constantly, or who must eat most of their meals in restaurants, find it very difficult to manage the diet effectively. This, of course, is not peculiar to a vegetable-oil food pattern, but is a common hazard for many other therapeutic diets. Most of the patients in this category soon drop out of the study because of their difficulty in managing the diet and in keeping Clinic appointments.

After a patient has been with the study for some time, he may be asked about his adjustment to the diet, satisfaction with the foods, experience with the recipes, practical application of the suggestions for dining out, and what foods, if any, he craves. Do patients yearn for foods that are not allowed? One man reminisced: "When I think of the good old days—bacon and eggs for breakfast every morning; nice big, well-marbled steaks for dinner; and then to finish the day, a hunk of Cheddar cheese with the beer . . . !" But, he added, "Maybe that's why I'm one of your guinea pigs today. Better let bygones be bygones, I guess."

Conclusions

The vegetable-oil food pattern provides an adequate diet and is easily prepared *at home* with the use of a special shortening and some modifications in standard recipes. Foods in which vegetable oil replaces other fats can be palatable and acceptable not only to patients, but to all members of the family. However, in our modern way of life, restaurant dining is common, and for home meals, homemakers often depend on processed foods, prepared mixes, and other convenience foods in which animal or hydrogenated fats are used. The need now is for more commercial products to be available through regular markets, which would meet the requirements of a vegetable-oil diet. Food processors already have the technical information needed to produce these foods, but consumer demand has not warranted their production, and, in some regions, laws prohibit their sale without a special license. Should this kind of change in food habits of the population in general prove advisable in the future, no doubt the markets will carry the appropriate foods.

Radioactive Cesium and Milk

Radioactive cesium, one of the degradation products resulting from the employment of atomic energy, is receiving increasing attention. It is less a hazard, however, than strontium-90, since it is turned over rapidly in the body and is not selectively concentrated in any one tissue.

As cesium and potassium are similar in a physiologic sense, their relative passage through biologic systems have been determined in this study. In two experiments, single oral doses of 1 microcurie of labeled cesium and 6 microcuries of labeled potassium were given to four cows. In 210 hr., 10.5 per cent of the cesium was accounted for in the milk, 30.0 per cent in the urine, and 32.7 per cent in the feces on the average. The percentage of uptake of radioactive cesium secreted in the milk was consistently less than that excreted. At 66 hr., 4.2 per cent of the potassium was secreted in the milk and 6.7 per cent of the cesium. In the same period, urine excretion accounted for 38 per cent of the potassium and 19 per cent of the cesium.

Atmospheric temperatures and volumes of milk flow and urine at the time of the observations influenced materially the excretion patterns.—*Abstracted from "Uptake and Excretion of Cesium^{134} and Potassium^{42} in Lactating Dairy Cows" by R. G. Cragle, J. Dairy Sci. 44: 352, 1961. Contributed by Frank E. Rice, Ph.D., Evaporated Milk Association, Chicago.*

Attitudes and the Use of Food[1]

CHARLOTTE G. BABCOCK, M.D.

Professor of Psychiatry,
School of Medicine,
University of Pittsburgh

IN A RECENT post-graduate seminar, the chairman posed this question to a group of physicians: where, in the history of man, is a logical place to start to consider problems of psychology? There was a thoughtful silence and then a few important suggestions: perhaps at the point where the first historical recording occurred. And where was this? Possibly in the primitive paintings in the caves of southern France as recorded some thirty thousand years ago. Or perhaps from the earliest myths, the totems and taboos that marked man's early efforts to explain those parts of life he did not understand, or to set some regulation for himself as he established customs and religion as the cornerstones of his earliest efforts at a form of society. Or maybe even earlier, at the point when man was first aware of interaction with another man and had a language, either of gesture or sound, which both understood and could repeat with the same repeated effect on the other. Surely all of these answers stimulate us to reflect on our historic past that has formulated our attitudes toward the vital necessities of our lives as they are available to us in our complex culture today.

Yet another suggestion was made, which for dietitians was perhaps the most pertinent. Said one physician: "Perhaps we should start at the point where man was sufficiently developed to understand that stimulation of his instinctual impulses without immediate gratification may lead to the formulating of ideas." When man was able to feel hunger pain and to associate it with the idea, "I am hungry," he could then search for food in a very different way than by sniffing, smelling, or hunting by chance; he could even dream about food and could find representation for it in his efforts to convey the idea, "I am hungry," to another (1). Thus, not only the need for food but food itself became an important stimulus to the development of paths of verbal and non-verbal communication between human beings.

[1]Presented at the 43rd Annual Meeting of The American Dietetic Association in Cleveland, on October 20, 1960.

The Problem of Communication

For a long time you have known that the animal, man, is characterized among other things, by the ability to speak and to use both a verbal and written language. This has empowered him not only to communicate with other human beings but to transmit his culture to on-coming generations. These are remarkable characteristics and great assets. They permit each of us a unique and a shared history which, always active in each moment of our current present, is our greatest hope. It is also our greatest problem in the matter of developing and sustaining a healthy people. Which of the unique experiences of breakfast in any family unit, which of the different shared experiences of the school cafeteria will each child carry in his memory and actions to use as an adult? Which of these will he teach to the on-coming generations? How can we help to develop in him flexibility of experience and concepts so that he will be able to integrate the changing data of each decade in order to teach data and attitudes healthfully to his child? These data essential to life are, of course, learned and largely transmitted by teaching, whatever the goal, quality, and level of the teaching. Only the hunger drive and the nervous system capable of experiencing both the pang and the learning stimulus are transmitted in the germ plasm.

It is already apparent to you that I plan to discuss communication. My main thesis is that, in order to establish good food habits, people must be able to learn, and we must be able to teach. Communication is of the essence. People must talk about food —what they know about it and what they feel about it—and the food therapist must talk with them about their knowledge and attitudes that bear on their use of food.

The Meaning of Food

The human race has long known that food is "more than calories." Food is essential for both the body and the spirit. It not only calls forth much of thinking and emotion, but food can also be en-

dowed readily with meaning and attitudes that are indeed "the body and the soul" of the person who partakes of or rejects the food available to him. The ability of the body and spirit to utilize food may change within any given person in the face of any stress (be it physical, societal, or emotional) that is of sufficient duration and of such timing as to influence the balance within which the organism was operating in the immediate past.

In other words, as a person is less healthy or more healthy, not only will the food attitudes, needs, and uses change, but also the availability of the individual to offer and receive communications, to learn, and to teach changes as well. Thus the immensity of the problem of communication is ever before us and must, in the presence of our professional skills as dietitians, nutritionists, or psychiatrists, be ever an integral part of the use of these skills.

What, for example, was the meaning of food and the task of the communication between the health professions and the mother in the instance of a twenty-five-year-old Italian woman who brought her eight-month-old baby to our Children's Hospital, cyanotic and breathing with great difficulty? The child had a mild case of pneumonia which responded promptly to medical treatment, but the cause for his breathing disability lay in the fact that the baby, of whom the mother was extremely proud, weighed 35 lb. She was puzzled when she was asked how she fed him, explaining in broken English that all of her family for three generations had been "big" people. Made confident from the teaching she had received from her mother and grandmother, she described herself as especially attentive to the child. She fed him 2 qt. of milk a day. She was unable to see the baby as sick except for its labored breathing. As the child psychiatrist who interviewed her remarked, the child was quite healthy in its own culture, but sick in terms of its pediatric and nutritional state.[2]

Perhaps this woman over-emphasized the cultural stimuli provocative of large quantity feeding of a mother's breast-equivalent for reasons that may have run the gamut from being over-zealous, to intellectually limited, to neurotic. Nevertheless, she was using milk for this baby for more than its caloric content. Her attitudes toward this feeding, which resulted in a diagnosis of exogenous obesity (2) and milk anemia, were that the baby was big and thus "good"; moreover, it was bigger than her sister's baby. In keeping with her image of her own people as "large," she felt that everyone could readily see that she was a good mother.

All of these attitudes were learned, were agreeable to her culture, and, at the conscious level, were compatible with her self-estimate as a mother. The unique feeling of this woman about her adequacy as a feeding mother, unchallenged until the baby became ill with pneumonia, was surely in part derived from her own image of herself. It was also derived from attitudes about feeding her when she was a little girl, and from attitudes readily shared by many members of her cultural group and experience.

[2] I am indebted to John B. Reinhart, M.D., Associate Professor of Child Psychiatry and Pediatrics in the Departments of Psychiatry and Pediatrics, University of Pittsburgh, for this clinical example.

Need for "Know-How" in Communication

Learning occurs both by identification with persons significant to one's past and present and by the formal and informal acquisition of factual knowledge. Thus the complexity of our task, that of communication of knowledge and attitudes appropriate to the healthy use of food, helps us respect our successes and have greater patience with our failures.

On the dietitian in the well-baby clinic, the hospital, the school cafeteria, the college, the factory, or the military installation and on the nutritionist in all of her research and teaching activities rests the heavy burden of finding the means to communicate her knowledge. Until she has these means, ignorance and misinformation in the use of food will remain. Without the spirit and methods essential to provide a frame of reference in which communication can flow, learning will not occur. As implied above, though we have "learned" all of our lives, adequate and consistently useful learning is a task that is difficult to accomplish in the individual and to transmit within the society. That the problem is one involving the conscious, pre- and unconscious attitudes and biologic drives of all people, plus the openly acknowledged and the covert attitudes within the many sub-cultures of our total culture, past and present, is well known to you. Therefore, let us turn our attention to some general principles of interaction with people, derived from the study of the phenomena just mentioned.

Principles of Interaction

Part of the problem for every person who would communicate better food habits to a person (or to a group) who wants to learn about the use of food is posed by the nature of knowledge itself. In spite of our constant professional exhortation to ourselves to "keep up to date," we are always behind. How much further behind, then, is the public, particularly the adult who does not voluntarily seek information pertinent to his well-being, or the child or adult who does not yet have a concept of public health as a personal and societal matter. That knowledge regarding food is constantly changing is well exemplified by the data now available regarding

the place of polyunsaturated fatty acids in the diet, or by the current controversy over the wise uses of milk and milk products, and of vitamins.[3] Therefore, outdated or faulty knowledge, or the patient's or client's complete lack of facts, is in itself a major problem. Further, it is essential for the health educator to ascertain both the fact and the attitudinal values that are currently attached by the given individual or group, to food and to knowledge about food. Both facts and attitudes are essential for health.

Thus, communication between the patient or client and the food therapist must occur, usually by means of an interview. Each interview, no matter how short or long, is an opportunity not only to gather data but to communicate knowledge and attitudes that will strengthen the individual's ability to use food well. I will not discuss the techniques of interview here, since a great deal about them is available in your journals and elsewhere (3). I will comment only that the interview is the tool by means of which one not only finds out where the learner is, as to content and to feeling about food, but also the avenue through which communication from the learner to the professional person and back, can flow. Flow in both directions is, of course, vital. For lack of space, I will talk about neither the advantages and disadvantages of other forms of communication, namely the group interview, the lecture, the use of visual aids, and other devices, all of which have their place in food therapy programs, nor will I discuss the implications of the suggestion that I am about to make for preventive programs for public health.

Food—An Intimate Association

The health educator who wants to establish paths of communication with the patient must possess not only an intellectual understanding but a genuine emotional insight regarding the meaning of food. She must know and feel that food is, from the day of birth, associated with intimacy. Buttressed by other life essentials, it carries not only the feelings of security, protection, love, and developing strength, but also the sense of pain, rejection, deprivation, and the potential terror of starvation. Moreover, from the earliest moments of a person's life, it carries the projections of power, whether these be the power of the Italian mother to feed 2 qt. of milk until the lungs are compressed, or the power of nations to starve those they perceive as their enemies into a rebellious and implacably angry submission, the effects of which we see in our headlines today.

Thus the feeling of intimacy, the sense of relationship to another human being, some of the implications of trust or distrust are detected by an individual through the handling and use of food. The food therapist may take for granted that anything new is more likely to be looked on quizzically than with whole-hearted interest; not only food and feelings but also food and ideas must be tasted with the tongue, examined with the eyes, studied as to how the protector (early the mother or mother surrogate, now the dietitian in the food interview) reacts to the food herself. The patient must explore whether the food offers a common ground for warmth and growth, or for rebellion, fear, and competition. To establish communication, the health educator must permit this exploration.

A patient reacts to the corn oil battle. Advertising about it is directed almost entirely to value attitudes and to this, the patient is responsive. Some advertisements are intended to shame the homemaker who deprives her family of the substitute for mother's milk derived from the cow; others tend to counteract the notion that liquid fat, like the bacon drippings some mothers throw away and others hoard, is waste matter, or even "bad." Still a third advertiser proclaims loudly and competitively: "If you wish to have status, you will not use corn oil, you will use our product." The dietitian must have her own attitude, be able to tolerate the patient's exploration, and then help him reach a closure on the controversy appropriate to his unique need. Making the one-to-one interview, or the group teaching in a classroom, a "safe" place so that learning drives can be freed from anxiety or need for over-indulgence, or from faulty past learning, is the task of every such experience. For the ill individual, for the physically mature but emotionally infantile adult, for the person tightly bound to his culture through his religious allegiances or his ethnic-disadvantaged position, the need is even more intense to hold to earlier learned attitudes and facts about food in the face of a clearly stated and totally rational explanation by the health educator. Often, feelings lag far behind intellect, but since feelings occurred before intellect was developed to a degree approaching its free full state, the patient frequently considers feelings far more reliable and trustworthy than facts which one has more recently learned through the use of intelligence.

The expression of direct feeling, such as anxiety, depression, rage, fear, and love, through use of food by over- or under-eating, by rejection of certain foods and acceptance of others, by "putting the hex" on some foods as though they were either poison or magical healers, and the indirect expression of many of life's conflicts through similar manipulation of food are too well known to discuss here and have been amply discussed in your literature (4, 5). Only when both trust and intellectual understanding are present, so that feeling and learning coincide, will that which is learned at the intellectual

[3] I am indebted to Juanita A. Eagles, Ed.D., Assistant Research Professor, School of Public Health, University of Pittsburgh, for her help with this section of this paper.

level become integrated and useful to the person. If intelligence and intellectual function are low, the complexity of the task is even further compounded.

Thus the wise food therapist will explore the food habits of a sub-culture in a community, will learn when "honey bread," for example, is only a delightful food and when it is a part of a warm and binding family ritual observance. She will observe the practiced and experienced patterns in the individual's use of food before she makes recommendations to her patient or client. Her objective is to use the meanings of intimacy, the relations of food to feelings of security, protection, strength, and power in ways that will bring out the assets. She needs to develop the person's food interests and capacities while she helps diminish those self-destructive trends that are expressed through inhibition or competitive displacement. The mother described earlier, feeling less intimately secure than she felt her sister to be, was so blinded by the competitive need that the real food need of the child was neglected.

Teaching the Patient about Food

It is not easy to offer precise suggestions for establishing communication, since each case and each group is unique, and all situations are to some degree partial. Nevertheless, some suggestions regarding food may be helpful. First, help the patient to see that there is more to learn about food than we know from our childhood experiences. There are facts about food to be understood and used. Learning to handle food is a skill and an art. In pioneer times, the skill and art were more concerned with obtaining, preparing, and preserving food. Processed foods and a different kind of culinary and social structure today demand an equal skill and art in the handling of food for ease, sociability, and health (6).

Second, show the patient that the food usage becomes more meaningful when one sees it as a substance of great range, flexibility, and choice. This meaningfulness develops and expands when one teaches that a diet is made up of certain essential nutrients (7), not specific foods. Teach the patient skills in using food exchanges; let him see that many foods, as well as other things in life, are of equal value and also that many foods can be used in a supplemental or complemental fashion. Such a concept allows the patient to learn that almost any diet can be made up from a choice of wide variety, that there are many sources of the essential nutrients. Thus, he is freed from having to struggle with the feeling of being "limited" or "disobedient to the diet," or "rebellious" and "guilty" because he needs change. The "spice of life" is not forbidden to him, and food becomes separated from matters of the morality and ethics which are often projected onto nutritive substances.

Furthermore, matters of ingenuity and the challenge to expand one's knowledge offer the patient much greater satisfaction than the dubious rewards of maintaining a rigid, unflinching obedience to an authoritarian stereotype of the doctor-father or the dietitian-stern-and-unyielding-mother who knows exactly what is "right" and who, in the patient's eyes, intends to see that her word and that of the doctor-father are carried out. It is much better to teach people that food is a substance with a vast range of possibilities about which they can use their heads than to try to force them to use their heads to memorize variations on the theme of the "right diet," an idea which they may have obtained not from you, but from another member of the professional team, a magazine, a childhood experience with a dieting parent or sibling, or the neighbor next door. Thus your sensitivity to the meaning with which food is invested will help the patient to disentangle himself from the depreciating notion that because he dislikes his diet, he must dislike or feel ashamed of himself or different from his peer group. Rather, his knowledge about himself may be increased, so that the man who eats a diet different from that in the lunch box of his comperes may feel secure in his acceptance of his own ability to take care of himself.

Third, avoid, and help the patient to avoid, designations for foods that stimulate feelings of inadequacy, false pride, or competitiveness, such as "hot dogs are only for teen-agers," and "salads are only for the ladies." That you may have to contend with either a male or a female patient's feeling that a salad is only for a lady, is a useful piece of knowledge to elicit from a patient before you try to teach him that he, too, might enjoy foods that are often used in salads. But, use this knowledge *for* him, not *against* him. The concept that foods are of various values, but all are valuable appropriate to their nutrient content, is a useful one and can be applied advantageously.

Coming back again to the "hot dogs," we pick up a fourth principle. People are different, and their differences are to be respected but not exploited. Because an adult likes or dislikes a hot dog does not alter its food value; teasing an adolescent about his "babyish" fondness for hot dogs may deprive him not only of the nutritive value of the food, but may increase his rebelliousness and move him a bit further from communication with his parents and peers and toward the self-depreciation expressed in anorexia or in obesity.

To push this point a little, such foods as hot dogs do have food value, but their social value may so far outstrip their food value that attention to this very fact can mean the difference between acceptance of a healthful program by an adolescent group and utter rejection of it. One learns to like foods all of one's life, but what is *age*-appropriate must be

respected as well as is that which is *nutrient*-appropriate. Biologically, food is life. The use of food for food value itself and for discipline of one's self so that both comfort and health are achieved is accomplished in most human beings only with struggle, and as a part of the over-all processes of maturation appropriate to each period of a given individual's life.

Fifth, it is important not to confuse people by non-specific generalities. A generalization that many people are obese because they overeat or have overeaten at some time in their lives does not mean that all obese people have tremendous appetites, or are depressed, or are dependent. Any of these things may or may not be true (8-10). Again, the careful interview, the study of the patient's clinic or hospital chart, the watchful observation of what he does with food, work in your library to stimulate your imagination both about the nature of his metabolism and of his culture, the continuous exercise of the principle that people are multi-faceted and very complex but nonetheless individuals—all these sharpen diagnosis of the problem. Clarity regarding the problems and means of resolution in the dietary management of the patient follows.

Sixth, start where the individual or group is. What does the individual like? To begin with the hypothesis that a given individual suffers if he is deprived of spaghetti (derived from the knowledge that spaghetti may signal his sub-culture) may lead to downfall because the generalizer forgot that the specific is equally important. The patient may never have eaten spaghetti or perhaps has no idea of how to make it. Where is he when he presents his food problem? The generalities of knowledge of both the cultural values and the individual and family variations of those values only have meaning in the light of the specifics of the given individual with whom you are dealing.

Seventh, keep constantly in mind that human beings learn slowly and need repeated opportunities to learn. Depending on the state of illness—from shock to convalescence to recuperation or to decline—the patient varies in what his anxiety and his need will permit him to learn from you. Remember that channels of communication open today may be closed next week and that the responsibility for re-establishing them rests with you. The task will not be easy. Since food is very close to people's most primitive feelings, groups as well as individuals will always feel that there is nothing new to learn about food and that you are presumptuous to think you can teach them anything about it. Hence patients seldom eat what they think they do or what dietitians and doctors think they should. Yet the wish that food, precious since the first day of life, "somehow" will give the patient whatever he wants or needs in life is tremendous.

Let yourself be secure, therefore, in your own knowledge that while food is not magic, it is indeed vital. It will not cure or prevent many of the things that we as therapists or they as patients wish it could, but its values and use are tremendous and life-giving. Such a professional security, plus a sound knowledge of your field so that you have reserves to give, after you have patiently met all the resistances to learning about food, will permit you freedom to exercise curiosity about the puzzling behavior of people in relation to food, to use ingenuity within the content of your practice, and to observe and learn from the exercise of your knowledge and understanding. Meet the disinterest, the resistance to change, the argument that health is a matter of common sense rather than scientific knowledge, with data and illustration just beyond the point of resistance and within the stream of the "positives" of the individual or group involved. Indicate to the person or the group the positive factors in the foods they are already using and how new knowledge will enrich or simplify the present food problem.

Expect and anticipate the objections that will come when you offer dietary change, using the very objections that you raise to changes in your own diet as a sounding board against which to try out your techniques. Let yourself realize that by raising questions, concerns, and objections, the patient or group is tasting this new knowledge, testing it out, trying to evaluate whether it is something worth learning about. Surely, the patient or group will test your own commitment to a food program by subtle or direct rejection of it, or by over-zealous devotion to it; your own relaxation and confidence about its worth is often the key that keeps the door of communication open for learning. Introduce changes about food information and food programs slowly; expect relapses but also expect sudden spurts of growth when the individual has been able to assimilate and see the worth of what you teach him.

And finally, it is undoubtedly easier to establish good food habits early than it is to change those once established. A twelve-year-old-boy was brought into our clinic[4] because he weighed 335 lbs. His parents complained that he was "too fat." The boy said nothing, but his obesity was a direct expression, and if you will, cried out for him of his desperately unhappy state about which he felt intense misery, but was unable to help himself. With slightly different physical and psychologic problems, this boy might have weighed only 40 lb., or he might have had ulcerative colitis or have been schizophrenic. We can spend a lifetime helping this boy. He might have been just as obese if he had been taught good food habits, for the conflicts of his life and its lack of direction would not have been prevented by ad-

[4]See footnote 2.

equate nutrition. Yet, a school dietitian, working with the teacher and children for this boy's better health, might have observed his psychologic and social problems and much earlier promoted an adequate referral to a psychologically sensitive pediatrician (11, 12,), a social worker, or a psychiatrist. Or perchance, the interest of his teacher and his nutritionist might have been sufficient to give him the strength to meet his health problems in a more constructive way.

It is this hope that we shall be preventive as well as curative that encourages us to be ever vigilant to ways to teach about the use of food and other essentials of life, so that the health of body, mind, and spirit may truly be not only the precious heritage of life but the fulfillment of the promise of this heritage for people everywhere.

References

(1) ASTLEY, M. R. C.: Personal communication.
(2) SEBRELL, M. H., JR.: Weight control through prevention of obesity. J. Am. Dietet. A. 34: 920, 1958.
(3) MEAD, M.: The dietitian as a member of a therapeutic team. J. Am. Dietet. A. 21: 424, 1945.
(4) BABCOCK, C. G.: Food and its emotional significance. J. Am. Dietet. A. 24: 390, 1948.
(5) BABCOCK, C. G.: Problems in sustaining the nutritional care of patients. J. Am. Dietet. A. 28: 222, 1952.
(6) SPOCK, B. M., AND LOWENBERG, M. E.: Feeding Your Baby and Child. N. Y.: Duell, Sloan and Pearce, 1955, chap. 6.
(7) TURNER, D.: Handbook of Diet Therapy. 3rd ed. Chicago: Univ. of Chicago Press, 1959.
(8) AYERS, W. M.: Changing attitudes toward overweight and reducing J. Am. Dietet. A. 34: 23, 1958.
(9) HAMBURGER, W. W.: Appetite in man. Am. J. Clin. Nutrition. 8: 569, 1960.
(10) HAMBURGER, W. W.: The occurrence and meaning of dreams of food and eating. 1. Typical food and eating dreams of four patients in analysis. Psychosom. Med. 20: 1, 1958.
(11) BRENNEMANN, J.: Some neglected practical points in the technique of infant feeding. Arch. Pediat. 40: 359, 1923.
(12) ALDRICH, C. A.: Ancient processes in a scientific age. Feeding aspects. Am. J. Dis. Child. 64: 714, 1942.

Dietary Purchasing in the Hospital

Decentralized purchasing for hospital dietary departments appears to be the most usual practice, at least according to 56 administrators and 54 dietitians in 61 hospitals who replied to a questionnaire sent out in February 1960. These hospitals ranged in size from 100 to 250 beds. Of the hospitals represented, 72.1 per cent used decentralized purchasing; 25 per cent, a modified, decentralized system; and only three (4.9 per cent) had centralized their purchasing. Where the decentralized system was in use, it was apparently the only one with which the administrators and dietitians involved had had experience. They seemed to think it satisfactory. Two of the three administrators in hospitals with centralized purchasing found it satisfactory, and they indicated that a cooperative relationship exists between the purchasing agent and the dietitians.

Most of the administrators and dietitians favored the dietitian being in full charge of dietary purchasing. However, more than a third of the administrators and a fourth of the dietitians felt that shared responsibility between the purchasing agent and the dietitian would be desirable. Only about half of the administrators and dietitians maintained that the dietitian's time spent in food purchasing is valuable, and 48 per cent of the administrators thought the dietitian's time could be used to better advantage.

For a purchasing agent to be efficient in food purchasing, according to both administrators and dietitians, he must possess a knowledge of food products and have an interest in the department and some training in food purchasing. Most of the administrators reported that their purchasing agents are less qualified than the dietitian to do the dietary purchasing.

With reference to the need for keeping informed about market trends and new foods, 44.4 per cent of the dietitians felt they could not "keep up" with centralized purchasing, although 18.5 per cent thought it possible.

Almost 54 per cent of the dietitians considered it an advantage to have food cost accounting done in the dietary department, but 43 per cent did not care to have charge of this function. High quality food standards and satisfaction of patients, clientele, cooks, and dietitians are more important than a low food cost to 87.5 per cent of the administrators.

Even though a purchasing manual for food specifications is an effective aid and guide for anyone responsible for purchasing for the dietary department, only four of the fifty-four dietitians reported that they had such a manual.—*Sister Mary Matthias, St. Rose's Hospital, Great Bend, Kansas, writing in the October 1960 issue of "Dietary Chatter" of the Catholic Hospital Association.*

Nutrients in California Lemons and Oranges[1]

GLENN H. JOSEPH, JESSE W. STEVENS,[2] and JOHN R. MacRILL

Research Department, Sunkist Growers, Ontario, California

EXISTING PUBLICATIONS on the composition of citrus fruits have usually lacked definite information about the variety, maturity, area of origin, sample preparation technique, and other such vital data. Generally, the samples were not representative of fruits commonly available to nationwide consumers throughout the year. Publications usually presented data on only a few nutrients for a given sample and likewise, data were not available on the composition of various parts of the fruit, such as peel, juice, and the whole edible portion for the same fruit sample.

The advent of electronic analytical equipment, spectrographic techniques, and improved biologic assay schemes has made it desirable to repeat analyses which were reported in the literature many years ago. Trace elements, now of great concern in nutrition, are readily assayed by spectrographic methods, and the flame photometer has made it possible to obtain quite accurate data on sodium and potassium.

This study was done, therefore, to fill a need for analyses on representative samples of the California citrus crop, carried out with all available techniques.

Plan of the Investigation

It was the plan of the investigation to determine the chemical composition as completely as possible for the several parts: peel, juice, and also for the whole edible portion (peeled fruit minus any seeds) of the three commonly available varieties of California-Arizona citrus fruits. These varieties are the Valencia orange which ripens and is shipped from May to November ("the summer variety"), and navel orange which ripens and is shipped from November to April ("the winter variety"), and the Eureka lemon which is available throughout the year. The location of important constituents in citrus fruits is shown in Figure 1.

California citrus fruits shipped to out-of-state markets are packaged according to definite fruit sizes specified by the Agricultural Code of California and are not "run-of-the-mill" sizes. It was for this reason that this study was made on fruits of specified diameters, representative of the majority of California fruits available in domestic and foreign markets. Data on hundreds of thousands of cartons of shipped fruits for many years form the basis for the selection of the fruit sizes chosen for these analyses.

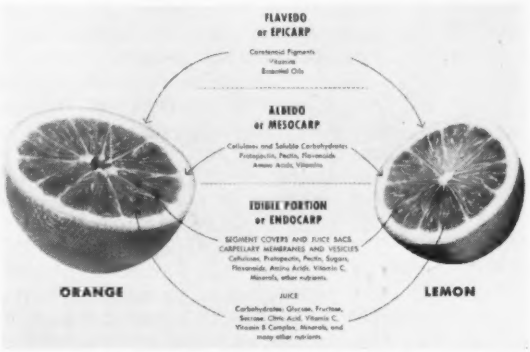


FIG. 1. *Location of important constituents in citrus fruits*

Due to the amount of work involved with the planned analyses which were to be made by the Wisconsin Alumni Research Foundation, it was necessary to limit the samples to only one truly representative sample for each fruit variety for each of two seasons. Sampling was done so as to represent the eight major producing areas of California and Arizona at essentially the mid-season for each variety. Fruits obtained at this time are actually representative of the crop.

[1]Received for publication April 14, 1960.
[2]Retired.

California citrus fruits now reach domestic and foreign markets rapidly and under scientifically controlled transit environment without significant change in nutrient composition. Therefore it was considered best, in order to present basically sound data useful through the years, to use samples selected as mentioned above rather than to obtain from retail markets in various parts of the world fruits of unknown origin and with varying and unknown treatments before and after picking.

Handling of sampling for such a perishable commodity on a state-wide basis presented considerable difficulty compared with sampling of frozen fruits, inanimate objects, and other items where the speed of sampling and the preservation of samples were of no importance. Another factor which had to be considered in the sampling relates to the different ways oranges and lemons react to storage after picking. It has long been known that during development lemons differ from oranges in at least one fundamental physiologic characteristic. When oranges mature, the free acids in the juice *decrease*, while in the lemon, as maturity advances, the free acids in the fruit *increase*. Lemons can complete advantageously the later stages of their maturation during proper storage whereas oranges are not harvested until full maturity. For this reason, lemons are usually picked in the "silver stage" of maturity (greenish-yellow in color with a light green tip), or sometimes in the light green or green color stage, and are stored or "cured" in rooms at 56° to 60°F. at a relative humidity of 86 to 88 per cent, with an abundance of fresh air.

This characteristic behavior of lemons is of mutual interest to both consumer and producer. A large portion of the California crop is picked while consumption is at a low ebb, but fortunately, the "curing" period enables the consumer to have improved lemons when hot weather is at a peak. The "curing" of lemons increases their content of juice as well as the percentage of ascorbic and citric acids in the juice (1).

Orange samples were collected, washed, and immediately sent by air to the Wisconsin laboratories for analysis, while the lemons were given the normal commercial storage treatment. All oranges and lemons used met the many requirements for maturity specified by the Agricultural Code of California.

Collection and Treatment of Samples

The samples for each variety of fruit were obtained on a state-wide basis within a period of two or three days, from eight producing areas representing the bulk of that variety usually grown each year. The procedure followed for all fruit samples was to obtain 100 fruits, within a narrow band of fruit diameter, from freshly picked lots in the receiving rooms of packing houses in each growing area involved. Fruits were taken from many different picking or "field boxes" to insure a widespread sampling from the area involved.

At the time the fruits were prepared for shipment to Wisconsin, they were taken to the Sunkist Field Laboratory at Ontario, California, where they were cleaned in a regular citrus packing house washer, such as is used commercially in actual fruit handling practices in California and Arizona. The washing and drying equipment was cleaned before each 800-fruit sample was started through it. Each lot of fruit was soaked 2 min. in a water solution of 0.5 per cent soap powder at 46°C. The fruits were then conveyed to revolving brushes where they were scrubbed thoroughly with the soapy solution. After repeated rinses with clean, fresh water, the fruits were air-dried.

The cleaned and dried fruits were again calipered and 35 were picked at random from the 100 available in each of the original samples representing the eight producing areas. The 35 fruits from each area were placed in 21 by 23 in. polyethylene bags which had about one hundred ⅜-in. holes for ventilation. The labelled bags were stored overnight at 60°F. and then were packed in standard, ventilated shipping cartons just prior to being sent air-freight to Wisconsin. It was intended that 30 fruits represent each producing area each season; thus, after the samples were received in Wisconsin, it was necessary to discard 5 from each bag. This provided for replacing any fruits which might have become damaged visibly during shipping.

It was necessary to have the fruits from each of the eight areas kept in separate bags during shipment so that, just prior to cutting the samples, proper attention could be given to having equal numbers of stem and stylar ends in the portions to be analyzed, as will be described in Part II of this series. Chemical differences in the composition of the stem and stylar ends are illustrated by the data of Bartholomew and Sinclair (2).

Source of Lemon Samples

The sampling plan for lemons was complicated by the fact that the one sample for analysis was to represent coastal regions when their fruit was near their peak production and also inland areas before lemons were starting to decline past peak shipments. The latter half of July was considered the best time to collect lemons to meet these conditions. Since the shipment of Arizona lemons is usually at its peak in December and Tulare County shipments in December and January, these areas could not be included, because this study was intended to represent summer fruits when the bulk of lemon shipments for the whole year are made. It was necessary, therefore, to make the original sampling from eight major lemon producing districts during the last week of July (after sixty days in commercial storage rooms).

Calipers were used to obtain lemons with an approximate diameter of 2.19 in. so the sample would be defined legally in California as "150-size count," meaning 150 lemons would fill the standard shipping carton as defined by the California legislature in 1957. These lemons are considered medium size. The lemons were chosen so as to be from orchards typical of the particular district involved and also where the trees had received no unusual fertilization or spraying treatment. The fruits were not washed or treated in any way prior to being put into the commercial storage rooms.

Six of the lemon samples came, for 1957 and 1958, from Fillmore, Santa Paula, Oxnard, Carpinteria, Goleta, and Corona. Other samples in 1957 came from Upland and Escondido, while in 1958, they came from San Dimas and Fallbrook.

Source of Orange Samples

Samples of navel oranges were obtained from eight major producing areas of California over a two-day period near mid-March in 1958 and again in 1959. These freshly picked fruits were taken from packing houses before they had been subjected to any washing or other treatment and were selected by size as determined with a standard fruit caliper. Oranges with an approximate diameter of 2.84 in. were chosen, representing the "88-size count," a medium size navel orange.

Navel oranges were obtained from each of the following districts in both 1958 and 1959: Corona, Riverside, Piru, Porterville, Lindsay, Lemon Cove, Orange Cove, and LaVerne-Claremont.

Valencia oranges were likewise obtained from eight major producing areas of California in a manner similar to that described above for the navel oranges. The sampling time for this variety was during the first two weeks of August in 1957 and 1958, which is considered near the mid-season for shipments to domestic and overseas markets. The size selected was the standard "138-size count," with oranges having an approximate diameter of 2.42 in.

The Valencia oranges for both 1957 and 1958 were from the districts of: Santa Paula, Piru, Corona, Placentia, Tustin, Irvine, and Villa Park. The eighth sample came from Escondido in 1957 and from Santa Ana in 1958.

Summary

Samples representative of California lemons and oranges were collected for extensive nutrient analyses. Fruits were taken during two seasons from eight major growing areas in relation to the volume of production of those areas. Valencia oranges were sampled early in August, Eureka lemons in late July, and navel oranges in February, dates coinciding approximately with the usual crest of shipments for each of the three varieties. The fruits were legally mature and of a uniformly measured medium size. All samples were cleaned and dried in the same equipment prior to being sent by air to Madison, Wisconsin for analyses. Results of the analyses are presented in the following article from the Wisconsin Alumni Research Foundation.

References

(1) BATCHELOR, L. D., AND BITTERS, W. P.: Juice and citric acid content of three lemon varieties. Calif. Citrograph 39: 187, 1954.

(2) BARTHOLOMEW, E. T., AND SINCLAIR, W. B.: The Lemon Fruit. Berkeley, Calif.: Univ. of Calif. Press, 1951.

Salt

Table salt, that all-important seasoner and problem-maker when low-sodium diets are called for, is not as important commercially as we in foods might think. Less than 5 per cent of the U.S. salt production reaches the dining table, according to the Diamond Crystal Salt Company, which this year is celebrating its seventy-fifth anniversary. About 70 per cent of production goes to the chemical field, with makers of chlorines and soda ash receiving the largest portions. Salt is, however, used in many industries involved in foods, such as meat packing, dairy, canning, confectionery, baking, food processing, flour processing, and fishing.

In the U.S., salt is produced by three methods: solar evaporation of sea water, conventional mining of rock salt, and hydraulic mining, by which water is introduced into a rock salt stratum and saturated brine is brought to the surface, where it is processed to obtain the desired types of salt.

There are three basic types of evaporated salt. Alberger salt, which averages 99.95 per cent pure sodium chloride, is used in the meat packing, canning, baking, butter, cheese, margarine, and pharmaceutical industries. Vacuum pan salt—ranging in purity from 99.75 to 99.85 per cent—is used on the dining table and in the baking, canning, and other non-food-related industries. Medium (grainer) salt is a coarse salt used chiefly for animal feeding, in industry, and in products other than food for human consumption. It averages 99.0 per cent purity.

Latest estimates place total annual world salt production at 88,900,000 tons annually, of which about 28 per cent—25,163,000 tons—are produced in the U.S.

II. Vitamin, Mineral, and Proximate Composition

Nutrients in California Lemons and Oranges[1]

JOHN J. BIRDSALL, PHILIP H. DERSE, and LESTER J. TEPLY[2]

Wisconsin Alumni Research Foundation, Madison

CITRUS PRODUCTS have received continued attention by nutritionists for many years because of their importance as sources of ascorbic acid. Citrus fruits, however, contain other nutrients of value (1-3). Published information concerning the nutrient content of citrus fruit has, in many cases, come from scattered sources and samples of unknown origin. This has been especially true in the case of oranges as seasonal, varietal, and area variations may make substantial differences in nutrient content (4).

To alleviate some of the confusion in this regard, a two-season sampling and nutritional evaluation program for California-grown lemons, Valencia oranges, and navel oranges was initiated. Results of the nutritional evaluation are presented here. Details on sampling procedures may be found in the preceding article (5).

Sample Preparation

Within two days of receipt of each batch of 240 whole fruits via air freight from California, the samples were prepared for analysis. The thirty fruits from each area, shipped in separate bags as explained earlier (5), were treated as described below before a composite of parts from 240 fruits was made.

Each fruit was circled at its equator by cutting only through the flavedo and albedo. Fifteen of these fruits were then peeled on the half toward the stem end, while stylar ends of the remaining fifteen fruits were peeled. The peeled ends were cut off, carefully freed from seeds, and then used for "edible portion"[3] analyses, while the unpeeled halves were juiced with an electric household-type juicer. Seeds were removed from the residue after juicing. This applied to lemons and Valencia oranges, since the navel oranges, of course, were seedless.

Since the fruit from each area was treated separately, the final sample of peel comprised peel from fifteen stem ends and fifteen stylar ends of each area sample. Likewise, the peeled ends or "edible portion" as well as the composite juice sample came from equal numbers of stem and stylar ends properly proportioned from the eight areas. The juice was screened through a 30-mesh sieve[4], and vacuum deaerated prior to bottling of the finished samples.

Weights were recorded after each operation so as to provide accurate percentages for the various portions of the fruit. These values are presented in Table 1. Before analysis, the blossom ends and vascular bundles were separated from the peel in the case of navel oranges. All prepared samples were held at 35°F. until analysis within two days. Ascorbic acid determinations were conducted immediately.

The constituents and properties determined quantitatively for juices, peel samples, and edible portions are listed in Table 2.

Published methods of analysis were employed for the measurement of most of the nutrients. These methods are listed by reference number for each constituent in Table 2. Soluble solids were measured

[1]Received for publication April 14, 1960.

[2]Present address: UNICEF, United Nations, New York.

[3]The term "edible portion" is used in its conventional sense denoting peeled, seeded fruit. The peel is also edible and has food uses; hence its nutritional value is reported in the tables.

[4]In these analyses, it was the intention to learn the composition of the juice itself as well as of the "edible portion"; consequently, it was necessary to remove as much as possible of the insoluble material from the juice without actually using filters which might introduce some undesirable artifacts. A U. S. series 30-mesh stainless steel screen was used for this purpose. It has about 750 openings per square inch, and the screen resembles that used for tea strainers.

It was not intended or possible to duplicate the wide variety of juice-pulp mixtures representative of home-prepared and commercially available "juices." The composition of such mixtures may vary over the years with the producer's fancies, while the composition of the juice itself is essentially finite.

TABLE 1 Percentage composition of lemons, Valencia oranges, and navel oranges

YEAR	PEEL	EDIBLE PORTION	JUICE
	Lemons*		
	%	%	%
1957	32.1	67.0	46.1
1958	31.5	67.8	39.6
Average	31.8	67.4	42.9
	Valencia Oranges†		
1957	24.3	75.1	49.9
1958	25.2	74.1	48.5
Average	24.8	74.6	49.2
	Navel Oranges‡		
1958	29.2	69.2	43.4
1959	31.8	66.5	39.3
Average	30.5	67.9	41.4

*Size, 150; average diameter, 2.19 in.; average whole fruit weight, 106 gm.

†Size, 138; average diameter, 2.42 in.; average whole fruit weight, 130.4.

‡Size 88; average diameter, 2.84 in.; average whole fruit weight, 182.2 gm.

by the Abbe refractometer. Amino nitrogen was analyzed by the Van Slyke manometric procedure. Acidity was measured by titration with sodium hydroxide to phenolphthalein end point and calculated as per cent anhydrous citric acid.

Results and Discussion

The results of the various analyses are presented in Table 2. Table 3 presents the average mineral contents of the samples. These were determined by semi-quantitative emission spectrography by a commercial laboratory.[5] In addition, the nutrient content of a single typical size 88 navel orange is presented in Table 4 to illustrate the distribution of nutrients on the basis of one average orange rather than a per-100-gm. basis of orange parts.

In general, the peel of all fruits studied contained higher levels of most nutrients than the juice or edible portions. Also, for certain nutrients, the amounts present in the (total) edible portion significantly exceeded those in the juice (i.e., calcium, iron, biotin, niacin, and pantothenic acid). This was undoubtedly due to inclusion in the edible portion of structural material similar to the peel in nutrient quantity. This structural plant tissue is eliminated to a great degree when juice is made from the fruit.

MINERALS

Slightly more calcium, magnesium, phosphorus, potassium, and sulphur were present in the juice and edible portions of oranges than in lemons. The iron content of Valencia oranges was somewhat higher than that of lemons or navel oranges. The sodium content of all fruits studied was low and showed little variation among fruits. In contrast, potassium content was high. The amounts of calcium and iron present in 100 gm. of edible portion of the three fruits would furnish approximately 5 per cent of the recommended allowance for a normal adult male (19). About 2.5 per cent of the phosphorus allowance would be furnished by 100 gm. edible portion. Spectrographic analysis revealed the presence of many other minerals which may be of nutritional value in trace amounts.

[5]National Spectrographic Laboratory, Inc., Cleveland.

TABLE 4 Average composition of a single California navel orange, size 88*, central axis and navel formation removed

CONSTITUENT	PEEL (55.6 gm.)	EDIBLE PORTION (123.7 gm.)	JUICE (75.4 gm.)
	gm.	*gm.*	*gm.*
Protein (Kjeldahl N x 6.25)	0.87	1.51	0.75
Amino nitrogen (Van Slyke)	0.10	0.07	0.04
Fat (ether extract)	0.11	0.12	0.08
Soluble solids, total	11.1	16.4	9.8
Sugar			
Total	5.66	11.59	7.83
Sucrose	0.48	5.36	3.93
Reducing	5.18	6.23	3.90
Acid as anhydrous citric	0.14	0.94	0.72
Moisture	41.8	105.3	65.5
Ash	0.36	0.53	0.30
	mg.	*mg.*	*mg.*
Calcium	90.6	52.6	7.9
Magnesium	10.8	12.5	7.0
Iron	0.33	0.50	0.14
Phosphorus	8.8	26.3	13.4
Potassium	90	217	133
Sodium	1.1	0.9	0.5
Sulphur	8.7	11.4	5.0
Ascorbic acid			
Reduced	123	70.6	44.7
Total	—	73.0	—
Biotin	0.00160	0.00088	0.00041
Carotenoids			
Beta-carotene	0.10	0.06	0.02
Total	6.8	2.65	1.06
Choline	12.8	16.4	4.2
Folic acid	0.00484	0.00419	0.00141
Inositol	103	232	118
Niacin	0.370	0.590	0.323
Pantothenic acid	0.169	0.274	0.141
Pyridoxine	0.057	0.061	0.036
Riboflavin	0.053	0.056	0.026
Thiamine	0.05	0.12	0.08

*Average diameter, 2.84 in.; average weight, 182.2 gm.

VITAMINS

Ascorbic acid, of course, was present in all three fruits in quantities of great nutritional significance (39 to 59 mg. per 100 gm.). The recommended allowance for a normal adult male is 75 mg. An interesting point, however, is the fact that the juice from navel oranges contained about 15 mg. per 100 gm. more total ascorbic acid than the juice from lemons or Valencia oranges. The edible portion of

Table 2 **Composition of lemons, Valencia oranges, and navel oranges**

CONSTITUENT	METHOD REFERENCE	PEEL			EDIBLE PORTION			JUICE		
		1957	1958	Average	1957	1958	Average	1957	1958	Average
Lemons										
		gm./100 gm.								
Protein (Kjeldahl N x 6.25)	5	1.44	1.50	1.47		1.13		0.44	0.50	0.47
Amino nitrogen (Van Slyke)	—	0.18	0.22	0.20		0.05		0.03	0.04	0.04
Fat (ether extract)	5	0.25	0.34	0.30		0.32		0.16	0.22	0.19
Soluble solids, total	—	8.90	10.47	9.69		8.82		7.97	8.63	8.30
Sugar										
Total	5	3.21	3.81	3.51		1.51		1.19	1.15	1.17
Sucrose		0.03	0.15	0.09		0.18		0.11	0.06	0.09
Reducing		3.18	3.66	3.42		1.33		1.08	1.09	1.09
Acid as anhydrous citric	—	0.41	0.38	0.40		4.93		5.91	6.05	5.98
Moisture	5	81.87	81.36	81.62		90.08		92.84	91.88	92.36
Ash	5	0.61	0.61	0.61		0.29		0.25	0.24	0.25
		mg./100 gm.								
Calcium	6	130.0	137.0	133.5		22.3		5.6	6.5	6.1
Magnesium	7	13.9	16.0	15.0		5.8		5.8	6.3	6.1
Iron	8	0.59	1.05	0.82		0.65		0.21	0.21	0.21
Phosphorus	9	12.3	12.7	12.5		15.8		9.6	10.9	10.3
Potassium	10	176	143	160		108		101	102	102
Sodium	10	6.6	6.4	6.5		2.5		1.0	1.0	1.0
Sulphur	5	11.0	12.7	11.9		5.3		2.0	3.3	2.7
Ascorbic acid										
Reduced	11	138.0	120.0	129.0		52.7		44.8	42.7	43.8
Total		—	—	—		54.7		—	—	—
Biotin	12	0.00262	0.00234	0.00248		0.00058		0.00028	0.00022	0.00025
Carotenoids										
Beta-carotene	13	0.03	0.03	0.03		<0.01		<0.01	<0.01	<0.01
Total		0.21	0.39	0.30		0.06		0.05	0.04	0.04
Choline	14	10.0	12.0	11.0		10.0		5.9	5.0	5.5
Folic acid	5	0.00548	0.00440	0.00494		0.00182		0.00094	0.00082	0.00089
Inositol	15	201	231	216		109		76	56	66
Niacin	5	0.358	0.354	0.356		0.129		0.069	0.072	0.071
Pantothenic acid	16	0.390	0.247	0.319		0.194		0.106	0.101	0.104
Pyridoxine	15	0.081	0.263	0.172		0.080		0.030	0.072	0.051
Riboflavin	5	0.057	0.100	0.079		0.021		0.013	0.011	0.012
Thiamine	17	0.067	0.048	0.058		0.042		0.029	0.032	0.031
Valencia Oranges										
		gm./100 gm.								
Protein (Kjeldahl N x 6.25)	5	1.75	1.31	1.53	1.31	0.95	1.13	1.13	0.88	1.00
Amino nitrogen (Van Slyke)	—	0.25	0.30	0.28	0.06	0.06	0.06	0.06	0.06	0.06
Fat (ether extract)	5	0.16	0.30	0.23	0.43	0.16	0.30	0.40	0.18	0.29
Soluble solids, total	—	14.40	16.98	15.69	13.33	12.78	13.06	12.92	12.59	12.59
Sugar										
Total	5	7.22	7.87	7.55	8.70	9.49	9.10	9.90	9.54	9.72
Sucrose		2.04	1.93	1.99	4.14	4.68	4.41	4.91	4.56	4.73
Reducing		5.18	5.94	5.56	4.56	4.81	4.69	4.99	4.98	4.99
Acid as anhydrous citric	—	0.34	0.24	0.29	0.68	0.82	0.75	1.02	1.02	1.02
Moisture	5	71.77	73.26	72.52	85.05	85.41	85.23	86.99	87.27	87.11
Ash	5	0.82	0.74	0.78	0.51	0.45	0.48	0.31	0.37	0.34
		mg./100 gm.								
Calcium	6	157.0	164.0	161.0	36.1	37.3	36.7	8.0	11.0	9.5
Magnesium	7	20.3	24.0	22.2	11.3	11.6	11.5	10.1	11.4	11.3
Iron	8	0.79	1.00	0.80	0.68	0.86	0.77	0.35	0.31	0.33
Phosphorus	9	21.8	19.8	20.8	22.8	21.3	21.8	20.0	18.9	19.5
Potassium	10	240	183	212	182	163	173	164	162	163
Sodium	10	3.6	2.4	3.0	2.0	0.6	1.3	0.8	0.6	0.7
Sulphur	5	21.0	21.0	21.0	11.0	12.0	11.5	8.0	9.0	8.5
Ascorbic acid										
Reduced	11	133.0	140.0	136.5	38.2	40.8	39.5	42.8	44.1	43.5
Total		—	—	—	41.6	43.0	42.3	—	—	—
Biotin	12	0.00472	0.00548	0.00510	0.00122	0.00113	0.00118	0.00077	0.00081	0.00079
Carotenoids										
Beta-carotene	13	—	0.25	0.25	—	0.15	0.15	—	0.17	0.17
Total		6.6	13.2	9.9	3.2	3.6	3.4	2.5	3.2	2.8
Choline	14	25.0	21.0	23.0	8.7	14.5	11.6	7.2	8.8	8.0
Folic acid	5	0.01410	0.00950	0.01180	0.00495	0.00336	0.00416	0.00260	0.00320	0.00290
Inositol	15	267	246	257	205	203	204	182	137	159
Niacin	5	0.927	0.849	0.888	0.467	0.515	0.491	0.355	0.396	0.376
Pantothenic acid	16	0.593	0.386	0.490	0.311	0.240	0.276	0.245	0.168	0.207
Pyridoxine	15	0.221	0.130	0.176	0.066	0.063	0.065	0.066	0.047	0.057
Riboflavin	5	0.104	0.078	0.091	0.033	0.033	0.033	0.028	0.025	0.027
Thiamine	17	0.12	0.12	0.12	0.13	0.12	0.13	0.10	0.09	0.10

Table 2 (Concluded)

CONSTITUENT	METHOD REFERENCE	PEEL			EDIBLE PORTION			JUICE		
		1958	1959	Average	1958	1959	Average	1958	1959	Average
		Navel Oranges								
		gm./100 gm.								
Protein (Kjeldahl N x 6.25)	5	1.56	1.56	1.56	1.19	1.25	1.22	0.94	1.06	1.00
Amino nitrogen (Van Slyke)	—	0.19	0.14	0.17	0.06	0.06	0.06	0.05	0.05	0.05
Fat (ether extract)	5	0.14	0.26	0.20	0.08	0.11	0.10	0.12	0.10	0.11
Soluble solids, total	—	21.23	18.63	19.93	13.86	12.72	13.29	13.57	12.34	12.96
Sugar										
Total	5	10.30	10.05	10.18	9.74	8.99	9.37	11.30	9.45	10.38
Sucrose		0.81	0.90	0.86	4.48	4.17	4.33	5.72	4.70	5.21
Reducing		9.49	9.15	9.32	5.26	4.82	5.04	5.58	4.75	5.17
Acid as anhydrous citric	—	0.25	0.25	0.25	0.77	0.75	0.76	0.99	0.93	0.96
Moisture	5	75.68	74.50	75.09	84.65	85.56	85.10	86.45	87.32	86.89
Ash	5	0.66	0.63	0.65	0.37	0.48	0.43	0.36	0.45	0.40
		mg./100 gm.								
Magnesium	6	20.9	18.0	19.5	10.1	10.0	10.1	10.0	9.5	9.3
Calcium	7	181.0	145.0	163.0	44.7	40.3	42.5	10.1	10.8	10.5
Iron	8	0.58	0.60	0.59	0.47	0.32	0.40	0.17	0.21	0.19
Phosphorus	9	16.4	15.4	15.9	21.5	20.8	21.2	17.8	17.8	17.8
Potassium	10	162	163	163	180	170	175	178	173	176
Sodium	10	2	1.8	1.9	0.7	0.6	0.7	0.6	0.5	0.6
Sulphur	5	15.0	16.1	15.6	9.1	9.2	9.2	6.1	7.0	6.6
Ascorbic acid										
Reduced	11	242.0	201.0	222.0	60.1	54.0	57.1	58.7	59.9	59.3
Total		—	—	—	61.7	56.2	59.0	—	—	—
Biotin	12	0.00294	0.00260	0.00277	0.00081	0.00062	0.00071	0.00061	0.00049	0.00055
Carotenoids										
Beta-carotene	13	0.14	0.20	0.17	0.07	0.03	0.05	0.04	0.02	0.03
Total		12.0	12.3	12.2	2.34	1.93	2.14	1.47	1.35	1.41
Choline	14	22.7	23.0	22.9	12.3	14.0	13.2	4.5	6.7	5.6
Folic acid	5	0.00890	0.00850	0.00870	0.00318	0.00360	0.00339	0.00159	0.00214	0.00187
Inositol	15	189	180	185	227	146	187	182	129	156
Niacin	5	0.624	0.704	0.665	0.453	0.501	0.477	0.430	0.428	0.429
Pantothenic acid	16	0.273	0.333	0.303	0.209	0.233	0.221	0.183	0.190	0.187
Pyridoxine	15	0.117	0.087	0.102	0.056	0.040	0.049	0.052	0.033	0.048
Riboflavin	5	0.101	0.089	0.095	0.047	0.043	0.045	0.037	0.031	0.034
Thiamine	17	0.09	0.09	0.09	0.10	0.09	0.10	0.10	0.10	0.1 0

TABLE 3 Average semi-quantitative spectrographic mineral content of lemons, Valencia oranges, and navel oranges

AMOUNT OF ASH	LEMONS			VALENCIA ORANGES			NAVEL ORANGES		
	Peel	Edible portion	Juice	Peel	Edible portion	Juice	Peel	Edible portion	Juice
Greater than 1% of the ash	K, Ca, Mg, Na	K, Ca, Mg, Na	K, Ca	K, Ca, Mg	Ca, K, Mg	Ca, K, Mg	Ca, K, Mg	Ca, K, Mg	Ca, K, Mg
Less than 1% of the ash	P, Si, Fe, Mn, B, Sr, Al	P, Si, Fe, B Sr, Al	P, Si, Fe, Na, Mg, Al	P, Na, Si, Fe, Mn, B, Al, Sr	P, Na, Fe, Si, Mn, B, Sr, Al	P, Na, Si, Fe, B, Sr, Al	P, Na, Si, Fe, Sr, B, Al, Mn	P, Si, Na, Fe, Al, B, Sr, Mn	P, Si, Na, Al, Fe
Trace (less than 0.01% of the ash)	Cu, Li, Ti, Ni, Cr, V, Bi, Zr, Pb, Sn, Co, As, Ba, Mo, Ag, Zn	Cu, Li, Ti, Ni, Cr, V, Mn, Zr, Mo, Sn, Ag, Co, Zn, Ba	Cu, Li, Ti, Mn, Co, Zn, Sr, B, Sn, Ni, Cr, V, Zr, Mo, Pb, Ag, Co, Ba	Cu, Li, Ti, Ni, Bi, Cr, V, Sr, Mo, Sn, Ag, Co, Zn, Ba	Sn, Li, Ti, Bi, Cu, Cr, Ni, V, Zr, Mo, Ag, Co, Zn, Ba	Mn, Cu, Ti, Ni, V, Cr, V, Mn, Zr, Mo, Sn, Zn, Sr, Co, Ba	Ti, Cu, Ni, Cr, V, Mo, Zn, Li, Zr, Sn, Ag, Ba	Ti, Sn, Zr, Cu, Ba, Ni, Cr, V, Mo, Ag, Zn, Li	B, Sr, Ti, Cu, Ni, Cr, V, Mn, Zr, Ag, Zn, Li
Not detected	Sb, Cb, Cd	W, Bi, Pb, Sb, As, Cb, W, Cd	Bi, Sb, As, Cb, W, Cd	Pb, Sb, As, Cb, W, Cd	Sb, As, Pb, Cb, Cd, W	Bi, Pb, Sb, As, Cb, W, Cd, Ag	Bi, Pb, Co, Sb, As, Cb, W, Cd	Pb, Bi, Co, Sb, As, Cb, W, Cd	Bi, Mo, Pb, Co, Sb, As, Ba, Cb, W

navel oranges also contained considerably more total ascorbic acid than the edible portion of Valencia oranges. Vitamins other than ascorbic acid were found in the edible portion and juice of the fruits in sufficient quantity to make small to moderate contributions to dietary needs. One hundred gm. edible portion or juice of the oranges tested would contribute from 2 to 8 per cent of the daily allowance for niacin, riboflavin, and thiamine. The lemons contained somewhat less of these nutrients. Oranges contained small amounts of beta-carotene while none could be measured in lemons.

Summary and Conclusions

A study was conducted to define more accurately the nutritional components of three California fruits—lemons, Valencia oranges, and navel oranges—over two growing seasons. The results confirm certain published data and establish that these fruits can contribute, in addition to ascorbic acid, important amounts of many other nutrients.

References

(1) Chemistry and Technology of Citrus, Citrus Products and Byproducts. USDA Agric. Handbook No. 98, 1956.

(2) Citrus Fruits in Health and Disease. Florida Citrus Comm., 1956.

(3) WATT, B. K., AND MERRILL, A. L.: Composition of Foods—Raw, Processed, Prepared. USDA Agric. Handbook No. 8, 1950.

(4) STEFFERUD, A., ed.: Food. The Yearbook of Agriculture. Washington, D. C.: Govt. Prtg. Off., 1959.

(5) JOSEPH, G. H., STEVENS, J. W., AND MACRILL, J. R.: Nutrients in California lemons and oranges. 1. Source and treatment of samples. J. Am. Dietet. A. 38: 552, 1961.

(6) Official Methods of Analysis. 8th ed. Washington: Assn. Off. Agric. Chemists, 1955, pp. 12, 114, 363, 367, 368, 371, 823, 826, 830.

(7) INGOLS, R. S., AND MURRAY, P. E.: Urea hydrolysis for precipitating calcium oxalate. Anal. Chem. 21: 525, 1949.

(8) HARVEY, A. E., JR., KOMARMY, J. M., AND WYATT, G. M.: Colorimetric determination of magnesium with eriochrome black T. Anal. Chem. 25: 498, 1953.

(9) SANDELL, E. B.: Colorimetric Determination of Traces of Metals. 2nd ed. N. Y.: Interscience Publishers, Inc., 1950.

(10) FISKE, C. H., AND SUBBAROW, Y.: The colorimetric determination of phosphorus. J. Biol. Chem. 66: 375, 1925.

(11) BILLS, C. E., MCDONALD, F. G., NIEDERMEIER, W., AND SCHWARTZ, M. C.: Sodium and potassium in foods and waters. Determination by the flame photometer. J. Am. Dietet. A. 25: 304, 1949.

(12) ROBINSON, W. B., AND STOTZ, E.: The indophenol-xylene extraction method for ascorbic acid and modifications for interfering substances. J. Biol. Chem. 160: 217, 1945.

(13) WRIGHT, L. D., AND SKEGGS, H. R.: Determination of biotin with *Lactobacillus arabinosus*. Proc. Soc. Exper. Biol. & Med. 56: 95, 1944.

(14) MOORE, L. A., AND ELY, R.: Extraction of carotene from plant material. A rapid quantitative method. Indust. & Engin. Chem., Anal., Ed. 13: 600, 1941.

(15) HOROWITZ, N. H., AND BEADLE, G. W.: A microbiological method for the determination of choline by use of a mutant of *Neurospora*. J. Biol. Chem. 150: 325, 1943.

(16) ATKIN, L., SCHULTZ, A. S., WILLIAMS, W. L., AND FREY, C. N.: Yeast microbiological methods for determination of vitamins. Pyridoxine. Indust. & Engin. Chem., Anal., Ed. 15: 141, 1943.

(17) NEILANDS, J. B., AND STRONG, F. M.: Enzymatic liberation of pantothenic acid. Arch. Biochem. 19: 287, 1948.

(18) ASSN. OF VITAMIN CHEMISTS, INC.: Methods of Vitamin Assay. 2nd ed. N. Y.: Interscience Publishers, Inc., 1951.

(19) Food and Nutrition Bd.: Recommended Dietary Allowances, Revised 1958. Natl. Acad. Sci.-Natl. Research Council Pub. No. 589, 1958.

Give Up the Coffee Break?

Of approximately 5000 persons replying to a questionnaire sent out by *Personnel Journal*, more than half stated that they would like to give up the coffee break. These were persons responsible for administering the coffee break. Even so, all agreed that the practice is spreading and here to stay.

In companies with 1000 employees or less, 14 per cent supply free coffee, but in larger companies the figure was only 8 per cent. Of the firms with 1000 employees or more, 16 per cent allow no coffee break, whereas only 6 per cent of the smaller organizations prohibit it.

In the large companies, 80 out of 100 permit the coffee break for both hourly paid and salaried employees. The comparable figure for the smaller companies was 90 per cent. Of all the companies replying, 30 per cent allow 10 min. morning and afternoon; 40 per cent, 15 min. A few limit the break to the morning.

Most of those replying agreed that employees like the coffee break, that it does boost morale, and is helpful to those needing relaxation from tedious, repetitive work. All said, however, that the abuse of time limits and the expense involved do not compensate. One company put the cost of its coffee bill at $25,000 a year. The difficulties created in enforcing the time limit, due to the congregation of large groups and subsequent visiting, and the clean-up problem were cited as disadvantages. However, companies which use vending machines and set no specified times for a break feel they have pretty well solved these problems. —*From Personnel Journal 39:243, 1960.*

Attitudes and Concerns of Professional Groups as Related to Labor Relations[1]

DALLAS M. YOUNG, Ph.D.

Associate Professor of Economics, Western Reserve University, Cleveland

SOMEWHERE, as you read this article, labor and management representatives are: (a) in negotiations over wages and a deadline approaches or has just passed; (b) involved in the use of economic weapons, such as strikes or lockouts, pickets or strikebreakers; (c) appearing in special hearings before public bodies on such difficult problems as work rules; and (d) searching for ways to prevent or reduce the impact of unemployment in the short period and in the long run.

Behind the headlines—whose print-size frequently is in direct relationship to the amount of violence—one will probably find another story. Behind the generalizations, which are too often based on partial truths, some amazingly encouraging things may be unfolding. To interpret current developments in labor relations, we need a foundation on which to build the framework of understanding.

In the limited space available I shall: (a) make some observations about the meaning of "labor," (b) discuss the term "bargaining," and (c) describe some "labor relations" developments involving professional groups.

Labor

Let's look at "labor"—a simple, five-letter word. What does it mean? What comes to your mind when it is said? What does the word "labor" connote? Hard, bodily toil? Certainly! Work at a machine? Yes! Mental effort? Of course! Class conflict? Well—! Anything else? Yes!

Ralph H. Blodgett, Professor of Economics, University of Florida, with whom I did my economic theory in the 1930s, has said and written (1): "Labor is human effort which is expended for the purpose of acquiring income." In this broad usage, a janitor, a drill-press operator, a highly-skilled tool and die maker, a foreman, a superintendent, a vice president in charge of labor relations—and yes, a baker, a lawyer, a teacher, a dietitian—are expending human effort for the purpose of acquiring income.

Each person, each classification, each group has labor problems. In a real sense they are strikingly similar—getting enough "take-home" to meet family living expenses; putting money aside to meet unexpected developments or to open opportunities for children; and wondering whether reassignments will bring new bosses and new methods which may mean a lost job. Surely no group has a monopoly on labor problems.

Yesterday the groupings of "labor" were different from what they are today; tomorrow they will be still different. In 1930, organized labor meant the craftsmen; in 1940 and 1950, it meant craftsmen plus many semi- and unskilled employees and some professionals. What will the groupings be in 1970, and in 1980—fewer unskilled, more office, more professional, and some workers from management?

Change is the rule and not the exception in life. "Labor" to Karl Marx, at the middle of the nineteenth century, was not the same as it is to a "United Statesian" in the seventh decade mark of the twentieth century. Keeping abreast of changes, evaluating and understanding their impact, and making the necessary adjustments provide those who would understand labor relations with never-ending challenges.

Bargaining

Any boy who once traded a knife, a piece of candy, a pair of skates with another boy only to realize after the trade that the other had got the better

[1]Presented at the 44th Annual Meeting of The American Dietetic Association in Cleveland, on October 20, 1960.

of the deal, knows the meaning of bargaining. The give and take, the maneuvering for position, the offers and counteroffers which may precede any agreement on the terms of exchange are all part of bargaining.

The purchase and sale of your labor, the conditions under which you will work are bargainable matters. If you are a supersalesman, you may be able to get as much or more than you are worth. If your employer is one who appreciates you and treats you fairly and as a human being, you may choose to bargain as an individual.

The predominant practice in our economy is *individual bargaining*. According to numerous studies by government researchers, only one out of four persons in the American work force is a member of a union; three out of four bargain as individuals. Roughly, 17 of the 70 plus millions in our labor force are union members.

By contrast to individual action, we have *collective bargaining*. The National Association of Manufacturers has defined it (2) as "a method by which management and labor may explore each other's problems and viewpoints, and develop a framework of employment relations within which both may carry on their daily association in a spirit of cooperative good will and for their mutual benefit."

The decision to bargain collectively is made after individuals conclude that they can gain more in wages or conditions of work by group, rather than by individual, action. To put it simply, advocates of collective bargaining say that there is absolute inequality of bargaining power when a man (or woman) who has small, if any, savings and on whom a family depends sits down with a personnel director of a multibillion dollar corporation to discuss his wage and conditions of employment. However, the absolute may change to relative inequality if workers unite into a group. As the unit uses its potential and actual power, its strength may come to equal or even exceed that of a particular management.

Let me emphasize that collective bargaining was not the creation of the "New Deal." Rather it is a process that has been used throughout the life of our nation. And since the beginning of the twentieth century we have moved toward protecting the process as an antidote to the use of economic force. The record will show that both Republican and Democratic administrations have recognized the value of collective bargaining. Special commissions appointed by Republicans William McKinley, Theodore Roosevelt, and William H. Taft urged its adoption, voluntarily or by law, to reduce conflict; Democrat Woodrow Wilson used it during World War I; the Railway Labor Act, which made it a legal right for the industry, was passed in the hey-day of Republican control in the 1920s; the National Industrial Relations Act (Wagner Act) of Democrat Franklin D. Roosevelt carried the principle into other industries; the Labor-Management Relations Act (Taft-Hartley) passed by a Republican-controlled Congress over the veto of Democrat Harry S. Truman continued and reinforced the right. The principle is clear:

Employees shall have the right: to self-organization; to form, join, or assist labor organizations; to bargain collectively through representatives of their own choosing; and to engage in concerted activities for the purpose of collective bargaining or other mutual aid or protection.

We have adopted an orderly process of elections and rules designed to minimize conflict. The National Labor Relations Board is primarily responsible for effectuating this public policy, although there are other federal and state agencies which may be involved.

Labor Relations and Professional Persons

You may be sure that professional persons have labor problems. They are concerned with earnings, hours of work, unfair disciplinary action, and many other conditions of work.

Without doubt, a high percentage of employed professional persons bargain as individuals. Some have chosen to bargain collectively. Some, however, may exercise the rights granted them by the federal law and may gain recognition through the election procedures of the National Labor Relations Board. Others may not; they may have to use persuasion—peaceful, if successful; subtle suggestions about, or direct use of, work stoppages, if necessary.

A review of what has happened in several professional fields may be helpful:

(a) *Newspaper writers.* After many years of watching the adjustments go to the printers and other "production" employees, the professional writers formed the American Newspaper Guild, formerly of the CIO but now affiliated with AFL-CIO. The Guild has more than 30,000 members.

(b) *Musicians.* Many individuals still toot their own horns, but the professionals are, by and large, members of the American Federation of Musicians (AFL-CIO) with more than 260,000 members.

(c) *Nurses.* Even though some of their members have opposed the move, the American Nurses Association has created an Economic Security Program which is seeking to improve working conditions for their members. Operating through their national, state, and regional (or local) offices, the Association is performing some of the functions and services of unions. They are a professional organization and not affiliated with AFL-CIO.

(d) *Teachers.* In the university field, the Amer-

ican Association of University Professors has represented the profession for many years. Its first objective was to get protection of freedom of speech, and it did so by obtaining "tenure" agreements from responsible representatives of American universities and colleges. It and its local chapters have since turned to salaries and other working conditions. Some university and college teachers are members of and represented by the American Federation of Teachers.

In public schools, there is the National Education Association, which has tried to remain professional but, in recent years in some regions, it has had to bargain on the things we have mentioned. The American Federation of Teachers (AFL-CIO) also bargains for teachers in some cities—particularly in areas in which the organized labor movement is strong.

In each of these professional groups, there are many persons who bargain as individuals. The same is true in the areas served by the organized labor movement.

The evidence suggests that where there are persistent, unresolved problems, the possibility of group action is ever present. Low pay may be the charge, but it may be triggered by unfair competition from partially-trained persons; by hasty, unjustified discharges; or by long working hours under poor conditions. The group may call itself an association, a guild, a federation, or a union. The objective of these "roses by any name" is to work for and protect their members. While there may be some stigma about "unions" among professional persons, it is none the less a fact that the trade unionists look with envy on the strength of the "closed shop" which the medical profession has been able to get and keep!

Finally, may I point out that I have attempted to present a framework on which you could understand the unfolding developments in a dynamic society. I hope I have conveyed the idea that one can talk about labor relations objectively and without emotion; if, perhaps, I have whetted your mind's appetite for further attention to this fascinating field, the pleasure has been mine (3).

References

(1) BLODGETT, R. H.: Our Expanding Economy. N. Y.: Rinehart & Co., 1955, p. 10.

(2) Collective Bargaining: A Management Guide. N. Y.: Indust. Relations Dept., Natl. Assn. Mfrs., n.d.

(3) YOUNG, D. M.: Understanding Labor Problems. N. Y.: McGraw-Hill Book Co., 1959.

"Saridele"—New "Milk" That Never Saw a Cow

In Java, a new and very successful food is "saridele," a soybean beverage developed through the help of the Food and Agriculture Organization of the United Nations (FAO) and the International Children's Emergency Fund (UNICEF). To make "saridele," sesame seed extract and vitamin and mineral concentrates are added to soybean extract. Then, simply add water and drink.

It is said to be almost as good as cow's milk for millions of Indonesian children who live on an island where the population of 55 million—or about 1000 persons per square mile—prevents the use of land for pasture for cows. Surveys showed that protein lack is a very serious problem on Java, a shortage which could not be met by local production of milk. Milk could be, and is, imported, but this is very expensive and must be paid for in foreign currency, which is scarce. Then, there are added difficulties of transportation and storage of such a perishable product as milk in a tropical country.

The idea of setting up an experimental dehydrated soybean milk factory took form in 1952, when Dr. S. S. De, FAO Regional Nutrition Officer in Bangkok, visited Java. In 1953, the Indonesian government and UNICEF agreed to set up a saridele factory in Central Java, with the technical cooperation of FAO. A small private factory in Loma Linda, California, which furnishes soybean milk for children allergic to ordinary milk, served as a prototype for the new plant. The first trial run was made in Indonesia in August 1957, and three months later, regular daily production of about 1500 lb. saridele was begun.

It was not an instant success. It was displayed and sampled at Javanese fairs and exhibitions to acquaint the people with the product. Vanilla or chocolate flavoring was mixed with it to make it more acceptable. Now, however, it is a "going" program and the plant produces 2½ tons daily—enough to equal milk produced by about 1500 cows—but still cannot keep up with increasing demand.

The product goes to the Indonesian government, schools, hospitals, and maternal and child health centers and can be found on the general market, as well. Plans call for expansion of the present plant and the addition of a third shift of workers to increase output.

CURRENT COMMENT

Strikes Can Be Handled[1]

ROSE RUTCHIK

Director, Dietary Department,
Beth Israel Hospital,
New York, New York

ON MAY 8, 1959, Local 1199 of the Retail Drug Employees Union called a strike of non-professional employees of six voluntary hospitals in Greater New York. The strike lasted forty-six days. Beth Israel Hospital was one of the six.

Although it is hardly possible to departmentalize the effort made during the strike to continue the essential services to the sick, the stress in this report will be on the management of the food service during the emergency.

Policies and Practices of the Hospital

A short summary of the policies and practices of the administration of the hospital will help place in perspective the events immediately preceding the strike, the strike itself, and its aftermath.

Beth Israel is a general, non-profit hospital with a bed capacity of 369 adults and 54 bassinets. About 40 per cent are ward patients; the rest are semi-private and private patients. The hospital is a member of the Federation of Jewish Philanthropies. It maintains an accredited school for professional nurses and is accredited for training of interns and residents. It has a very active Out-Patient Department and a large and active Volunteer Department administered by a full-time Director of Volunteers.

Beth Israel Hospital serves only kosher food. All food service areas are located in one building, and all food is prepared in the Main Kitchen. Patients' food service is decentralized, with a service pantry on each of seven patient floors. Dumbwaiters deliver cold foods and short orders to each pantry from the main preparation area. Hot food is delivered to the pantries in electrically-heated bulk food conveyors transported by elevators. Modified diets comprise approximately 60 per cent of the trays.

The hospital also operates a non-profit pay cafeteria for employees where everyone pays for meals except student nurses and dietary personnel. Patients' visitors are served in the employees' cafeteria at slightly higher prices. The cafeteria is open for a mid-morning and a mid-afternoon coffee-break hour, and mid-morning coffee had been delivered on request to the nurses' stations by a dietary employee. A late evening meal is sent to house-staff and to student nurses' quarters.

The Dietary Department is responsible for all food service, including routine nourishments, which are served at 2 P.M. and from 7 P.M. to 9 P.M.

In the spring of 1959, there were 108 dietary employees of whom about fifteen worked part-time. A 40-hr. work-week for all full-time employees had been in effect for several years, and time and a half had been paid for overtime for many years.

Non-professional employees receive two weeks' vacation after one year of continuous employment, pro-rated after three months. An additional vacation-day up to three weeks is granted for each year after ten years of employment. All employees get at least ten days' sick leave; nine paid holidays; and three to seven days for a death in family, according to need. Uniforms and uniform maintenance are provided for all non-professional employees. A merit increment system has been in effect for many years. Intra- and inter-departmental promotions of qualified employees to higher-paid positions has been standard practice. Employees and their families receive medical and dental care in the hospital and in the out-patient department, including free medications up to one dollar, more expensive drugs at cost. Starting salaries in the unskilled categories in 1959 were 88 or 89 cents an hour.

The personnel, professional and non-professional, consists of people of all creeds, colors, and national origins; the only criteria for employment are suitable qualifications and good references.

The Union Moves In

Early in 1959, Local 1199 of the Retail Drug Employees Union published an attack on the personnel policies of voluntary, non-profit hospitals in this area relating to non-professional employees. Charges concerned hours, wages, overtime pay, fringe benefits, and racial discrimination. It started an intensive campaign to organize these employees and to gain recognition as their bargaining agent.

The non-professional employees at Beth Israel were divided into three camps: the joiners, the non-joiners, and the undecided. For several weeks, much tension existed, owing to the pressures exerted by the signed-up members and their stewards on the other employees in persuading them to join the Union. There were: mass meetings at Union headquarters; surreptitious huddling on hospital premises; hushed conversations in the dining room;

[1]A condensed version of this report was presented at the 43rd Annual Meeting of The American Dietetic Association in Cleveland, on October 20, 1960.

threats of violence to non-joiners; expressed hostility to administration; passive resistance on the job; and disregard of authority. When the attitudes and work performance of employees became unacceptable during this period, appropriate disciplinary measures were applied as usual by the departments affected. The word "discrimination" became the most frequently-spoken word of the day.

Preparations for a Strike

In the meantime, what preparations were being made for the eventuality of a strike? The administration proposed that should the emergency occur, all available effort was to be mobilized for essential services to the patients. Patient care was to continue at the highest possible level. All other work was to stop if necessary. Each department was requested to outline plans of operation to meet several alternative situations, namely:

(a) Should the strike last one day.
(b) Should the strike continue for a longer period.
(c) Should no employees report on duty.
(d) Should a few production and service employees report.

What, specifically, did the Dietary Department plan to do if the emergency arose?

1. Abandon selective menus.
2. Simplify menus.
3. Keep modified diets to a minimum.
4. Serve only essential between-meal nourishments.
5. Stockpile pre-packaged, ready-to-eat, and easy-to-prepare foods.
6. Centralize as much of the food preparation as is possible within the decentralized set-up.
7. Curtail dishwashing to a degree dictated by the situation.
8. Stockpile paper dishes, plastic-ware, and paper trays. Plan for on-call deliveries.
9. Provide free meals in the cafeteria for everyone, including all volunteers. If necessary, provide continuous service by volunteers to stagger meal hours more adequately.
10. Discontinue food service to visitors.
11. Discontinue coffee-break deliveries.
12. Provide simple box-type meals for the house-staff and student nurses' midnight supper.

The following foods were stockpiled:

Individual prepared and hot cereals
Instant coffee: 4½-oz. packages for the 3-gal. urn; ⅔-oz. packages for the 12-cup coffee decanter; and individual packets for cup service
Individual tea bags, sugar, salt, and pepper services
Individual jellies
Canned vegetables—whole and puréed—juices, fruits, soups, fish, dietetic fruits and vegetables, baby foods
Ready-to-eat meats
Pasta products, rice, plain crackers, matzo, gelatin desserts
Nonfat dry milk, flour, and bulk sugar

Perishable foods were to be ordered as needed, since the hospitals were assured deliveries of essential food and medical supplies. Nonetheless, the day the strike began we had in our refrigerators and freezers two days' supply of half-pints of fresh milk, cottage cheese, sour cream, and half-and-half; four days' supply of butter and fresh eggs; one day's supply of frozen fish; and one week's supply of fresh meats.

Skeleton emergency menus were planned for quick use in case of an extreme emergency; as follows:

Breakfast

Juice
Prepared individual cereal
Instant hot cereal
where necessary
½-pt. container of milk
Roll
Individual jelly
Instant coffee
Cream

Lunch

Juice
Alternate: hard-cooked eggs, cottage cheese, sliced cheese, canned fish,
Bread, butter, jelly
Canned fruit
Instant coffee or milk
Cream

Dinner

Juice
Alternate: ready-to-eat meats,
frozen dinner, canned fish
Canned potato
Canned vegetable
Canned fruit
Bread, jelly
Tea, lemon

Fortunately, our food production crew remained nearly intact and, although our food service was streamlined, we did not need to resort to this extreme modification of menu.

Negotiations

The strike was first set for April 22. At the request of the Mayor, however, Local 1199 agreed to postpone the strike to allow more time to formulate an agreement.

During this period, the Committee of Presidents of the Voluntary, Non-Profit Hospitals of Greater New York formulated and announced its ten-point program for all non-professional employees:

1. Increased wages for all.
2. Minimum rate of $1.00 per hour.
3. Forty-hr. work-week.
4. Overtime pay at time-and-a-half.
5. A program of revised job grades, rates, and increments.
6. Fringe benefits of life insurance and Blue Cross coverage.
7. A pledge to continue a policy of non-discrimination.
8. Seniority rights.
9. A formalized grievance procedure.
10. A permanent Administrative Committee to supervise and effectuate the program and to review employment conditions on a permanent basis.

The Central Labor Council rejected this program

of employee benefits, insisting on recognition of the Union as the bargaining agent for the hospital employees. Ignoring a court ruling that a strike against voluntary, non-profit hospitals is illegal, it called the strike for early May.

The president of Local 1199 wrote to the Commissioner of Hospitals urging him to make available beds in city hospitals for the transfer of patients from the strike-threatened hospitals. He also urged: physicians not to admit patients to the designated hospitals; surgeons not to operate, except in extreme emergency; patients' families to arrange for the transfer of their relatives to city hospitals; professional employees not to perform any of the jobs in the non-professional categories. Administrators were told where to contact technicians whom the Union made available for emergencies.

Beth Israel's administration issued bulletins to physicians, patients' visitors, friends of the hospital, and all personnel on duty asserting that the hospital expected to provide a high level of care to patients without interruption.

On May 5, all non-professional employees were interviewed by the department heads and advised of the Beth Israel plan to increase their salaries by $5 a week as of June 1; to provide free individual Blue Cross coverage by September 1; to provide free a $500 life insurance policy by October 1. At these interviews the dietary employees were asked if they might be counted on to come to work in the event of a strike. All but three said "yes." About a dozen qualified their answer with: "If they will let me pass the picket line." We knew that many of them were ready to strike, but it was impossible to tell who was saying "yes" in good faith.

When a hospital is threatened with a strike, how should we, as professional employees react? How objective can we be in the face of our sympathy for the striking workers on the one hand and our responsibility to patients on the other? How can we rationalize crossing the picket line where "our" employees are fighting for a principle? But, how can we rationalize *not* crossing the picket line beyond which "our" patients may be fighting for their lives? Many of us—professional, technical, and non-professional employees alike—were faced with this dilemma. We made our decision and found justification for it—each in his own conscience.

The anticipated strike date was Friday, May 8. Not knowing what to expect, we prepared for an absolute emergency. All employees were scheduled to work since we did not know who would show up. Half of the supervisors were scheduled at 6 A.M., and half at 10 A.M., and we prepared to face the day as conditions dictated. Patients' breakfast trays were set up with paper and plastic service on Thursday evening. We had two menu plans for Friday—one consisting of foods requiring no preparation in case of a total walk-out, and the other, modified with a view toward a partial walkout.

All New York's ears and eyes were glued to the newscasts on Thursday evening, May 7, for the outcome of the talks in the Mayor's office. By 11 P.M., the strike was a certainty.

The Strike Begins

Friday dawned. At 6 A.M., the dietary employees appeared at their stations. Who came? Six supervisors, eight production workers, a storeroom helper, a counter-woman, a pantry-woman, a cashier. By 6:30 A.M., when we saw the picket lines form at the entrances to the hospital, our available workers were: sixteen dietitians and food service supervisors, virtually the entire production crew, two rabbis (whose sole responsibility is to supervise kosher food preparation), two cashiers, one pot washer (who was hospitalized with a leg injury on the day of the strike), a counterwoman, and one full- and one part-time pantry aide—a total of thirty-one out of 102 employees.

There is this about a dietary department: in an emergency, everyone available gives his utmost effort and three meals are always served—and served on time. So it was that day and every day the strike continued.

Food service continued uninterrupted, though streamlined. Volunteers were mobilized from the Volunteer Department as well as from the community. Many non-striking hospitals sent their employees to help in the various departments. Vendors, former patients, patients' relatives, friends, and relatives of working employees came from every part of Greater New York at all hours and helped wherever needed. Volunteers served food, manned elevators, mopped floors, hauled garbage. All office and administrative personnel were utilized at some time during each day in essential service areas. No task was too menial, no effort too great where the needs of the sick were concerned. During the first week, all dietary employees on duty worked seven days from 5:30 A.M. until 7:00 P.M. The food service supervisors did all the setting up and serving of trays and cleaning of pantries. The food production crew prepared the food, washed pots and pans, and cleaned up the kitchen. They also helped serve patients and employees. The pantry aides assumed responsibility for their pantries and directed volunteers in tray service. The rabbis and cashiers helped serve where necessary.

The quantity and quality of work performed were amazingly high. Whereas the food production load for the patients diminished by virtue of simplified, non-selective menus, the production load for the cafeteria more than doubled because all working personnel, including volunteers, were allowed free meals during the strike.

The Personnel Office began to recruit new employees shortly after the strike started, and we were soon able to schedule most employees for six rather than seven days a week and to rotate short and long days to reduce mounting fatigue. For seven weeks plus, all employees who were on duty collected very large salary checks, due to the hours of overtime. Although fatigue and tension were great, spirits and service continued to be amazingly good.

Throughout the strike, the State Department of Welfare made almost daily inspections of the hospital and found services to be very adequate. The menus, the quality of the food service, and sanitation were rated good. A high patient census was maintained during the strike and reaction to the food and to the service was favorable. There were no complaints of cold food.

The Psychologic Impact

As the strike wore on, the strikers began to feel the pinch of pay-less weeks and possibly a sense of betrayal because the conditions most important to the workers had either been in effect at Beth Israel or were agreed to before the strike was called. Despair, anger, and then violence began to stalk the streets. Friend became foe. Freedom of choice and the right to one's opinion became dangerous indulgences.

What did the administration of Beth Israel Hospital do to protect the non-striking workers from possible bodily harm? From the very beginning, police protection was provided around the clock at the hospital entrances, at the nearby subway-station entrances, and at local bus stops. Sleeping accommodations were provided in the out-patient building for all the employees who wished them.

All employees were urged to travel by taxi in groups or, if necessary, individually to and from home or subway stations. The hospital paid all cab fares. Limousines were engaged which carried groups of employees from the hospital to centrally located subway or bus stops. The Dietary Department alone spent $1,100 for cab fares.

The Aftermath

The strike ended on June 22—without union recognition. The ten-point program rejected originally by the Central Labor Council became, with few modifications, the basis for ending the walk-out.

Rehiring of all employees, except those who had committed acts of violence, was one of the conditions conceded by the hospitals. The implementation of this at Beth Israel took about three weeks.

What were the problems that arose in the post-strike period of adjustment? First, our experience led to the following changes in the procedures of the Dietary Department which enabled us to reduce our employee complement:

(a) Abandonment of the selective menu.
(b) Use of instant coffee.
(c) Use of paper dishes in some patient areas.
(d) Employment of only women for pantry work.
(e) Combining some jobs.
(f) Rescheduling of some jobs.

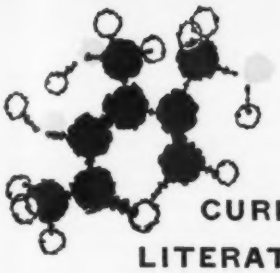
But, what were we to do with the men and women who were returning to work in addition to the employees we had hired during the strike? Even though the rehiring was gradual, we were almost overwhelmed by the number of employees.

There was also the problem of returning employees to their former or comparable jobs. Since a number of jobs were filled, some of the rehired employees had to be assigned to jobs they considered not comparable and they filed grievances claiming discrimination. However, Beth Israel's policy precluded dismissing any employee who had worked through the strike, and a number of unpleasant incidents developed. Eventually, of course, the normal attrition of turnover levelled off the number of workers and we were able to establish the desired complement.

Another problem we faced in the early post-strike period was the re-establishment of cordial relations among the aggrieved parties—and it appeared that everyone was an aggrieved party. The strikers came back with a chip-on-the-shoulder attitude. The non-strikers resented the re-employment policy. It was many months before by-gones became by-gones.

A formalized grievance procedure was set up to handle employee complaints. If they are not resolved by the department head, the Personnel Director, or the Executive Director—in that order—they may be referred for arbitration outside the hospital. For a few months, this was probably the greatest time-waster, since every small intra-departmental problem became a cause for filing a grievance. Many grievances, of course, were resolved within the hospital, but some went to arbitration. The majority of these were resolved in favor of the hospital, although in a few instances the decisions were in favor of the employees. For months, the time spent in writing reams of employee interviews and grievances was phenomenal. But, again, time has taken care of that. Pent-up resentments have gradually dissipated, and few problems now attain the magnitude of a grievance.

When the strike was over and the turmoil subsided, the administration still sought ways to express its appreciation to the employees whose untiring efforts made it possible to provide uninterrupted patient care. It gave each service employee who remained on duty throughout the strike a sizable cash bonus—though humbly aware that the loyalty and the depth of conviction which gave strength to many of the men and women who carried the burden for the care of the sick during those awful days cannot be reckoned in money.



CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl Frederick, Lombard, Illinois; Margene A. Wagstaff, Elmhurst, Illinois; the following dietetic interns of the Veterans Administration Center, Los Angeles; Nancy L. Alcorn, Phyllis Bollman, Cynthia G. Danielson, Margaret E. Dorsey, Carolyn Henricks, Kristin Holmberg, Karen Mund, and Nadyne Rhinelander; Teresa R. Deviller and Lorraine Larson, dietetic interns, Charity Hospital, New Orleans; and the Journal staff

ACTA MEDICA ET BIOLOGICA (Japan)

Vol. 18, September, 1960

*Alterations of the intestinal flora in patients of bacillary dysentery and carriers by small and usual amount antibiotic treatments. T. Aoki, K. Kozima, A. Hoshino, and K. Ikemura.—p. 171.

Intestinal Flora. Many studies have been reported on the alterations of the intestinal flora by the oral administration of antibiotics. In this study, the effects of the usual and small dosages were investigated in four patients suffering from bacillary dysentery and in seven carriers. In two of the four cases treated with the usual amount of antibiotics, *E. coli* disappeared in a relatively long period. Only one of seven patients treated with the smaller dosage showed a short-time disappearance of *E. coli*. In all three patients in whom the *E. coli* disappeared, a dominance of Enterococci was evident. In two patients treated with the usual amount of antibiotic in whom *E. coli* did not disappear, a rapid increase of the Proteus group was observed.

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 9, March-April, 1961

*Factors influencing serum cholesterol levels of Central American children. I. Effect of adding fat and animal protein to the diet. J. Méndez, N. S. Scrimshaw, W. Ascoli, and M. A. Guzmán.—p. 143.

*Factors influencing serum cholesterol levels of Central American children. II. The effect of gross dietary changes. J. Méndez, N. S. Scrimshaw, M. Flores, R. de León, and M. Béhar.—p. 148.

Infection and nutritional status. I. The effect of chicken pox on nitrogen metabolism in children. D. Wilson, R. Bressani, and N. S. Scrimshaw.—p. 154.

*Serum ascorbic acid, riboflavin, carotene, vitamin A, vitamin E and alkaline phosphatase values in Central American school children. M. A. Guzsmán, G. Arroyave, and N. S. Scrimshaw.—p. 164.

*Urinary excretion of creatinine of children under different nutritional conditions. G. Arroyave and D. Wilson.—p. 170.

*Serum and urinary creatinine in children with severe protein malnutrition. G. Arroyave, D. Wilson, M. Béhar, and N. S. Scrimshaw. —p. 176.

*Serum liver vitamin A and lipids in children with severe protein malnutrition. G. Arroyave, D. Wilson, J. Méndez, M. Béhar, and N. S. Scrimshaw.—p. 180.

*All-vegetable protein mixtures for human feeding. V. Clinical trials with INCAP Mixtures 8 and 9 and with corn and beans. N. S. Scrimshaw, M. Béhar, D. Wilson, F. Viteri, G. Arroyave, and R. Bressani. —p. 196.

*New dimensions for public health nutrition. The challenge of chronic disease and aging. D. M. Youland.—p. 211.

Sex variation in the nutritional state of urban Zulu adults. I. Weight, skinfold thickness, and skin and mucosal lesions. J. H. Abramson, B. Gampel, C. Slome, and N. Scotch.—p. 217.

Sex variations in the nutritional state of urban Zulu adults. II. Serum protein levels and prevalence of edema. B. Gampel, J. H. Abramson, C. Slome, and N. Scotch.—p. 229.

*Serum and liver cholesterol, total lipids and lipid phosphorus levels of rats under various dietary regimens. E. B. Wilcox and L. S. Galloway.—p. 236.

Dietary Additions and Serum Cholesterol. The rural population of Central America has been shown to have relatively low serum cholesterol levels, a low dietary intake of both fat and animal protein, and a very low prevalence of severe aortic atherosclerosis. In this study, the effect on serum cholesterol levels of adding fat and animal protein to the diet of rural Guatemalan school children was observed. Dried milk powder, lard, hydrogenated cottonseed oil, and cottonseed oil were the supplements. No significant effect on serum cholesterol levels was noted with any of these supplements.

Gross Dietary Changes and Serum Cholesterol. To investigate the effect of extensive dietary changes on the low serum cholesterol of rural Guatemalan school children, children from families of low socio-economic status were given diets similar to those consumed among upper socio-economic groups in Guatemala. Dietary changes included increased protein and fat and different kinds of fat. These changes elevated the low cholesterol levels of the low-income children, although not sufficiently to account for the differences between upper and lower socio-economic groups. It is suggested that factors other than those studied must be important in producing the markedly lower serum cholesterol values in lower as compared with upper socio-economic groups in Guatemala.

Serum Constituents of Central American Children. Microchemical analyses of blood samples from school children in different surveys conducted in Central America provide data for the averages for serum constituents. Comparison of the present results with similar studies in the U.S. indicates that in the Central American children studied, the serum ascorbic acid was higher, serum riboflavin and vitamin E were in the same range, and serum vitamin A and total carotenoids were lower. No elevated serum alkaline phosphatase values were encountered.

Urinary Excretion of Creatinine. The 24-hr. excretion of creatinine per centimeter of body height was studied in three groups of Guatemalan children. The data from the adequately nourished subjects coincided with those of healthy North American children, indicating their relative muscle mass to be similar. The children from the rural group and those with kwashiorkor excreted much less creatinine. Thus, in Guatemala, economically and nutritionally underprivileged children without overt malnutrition do not differ radically in the magnitude of protein depletion, as indicated by creatinine excretion, from those with kwashiorkor. With recovery from kwashiorkor, a marked increase in the creatinine excretion was observed, but in the majority, levels normal for their age were not reached even after six to eighteen months of treatment.

Creatinine in Protein Malnutrition. Nine children hospitalized with kwashiorkor had very low initial urinary excretions of creatinine which increased sharply during the first week of treatment. The magnitude and rates of these increases were too great to be accounted for by a change of muscle mass. The initial serum creatinine concentrations, although not initially elevated, decreased markedly parallel to the increase in urinary excretion. In children who were clinically recovered, serum creatinine levels remained much lower than the average for a group of well nourished control subjects. It appears that creatinine clearance in children does not represent true glomerular filtration. A practical conclusion from these results is that the figure for 24-hr. urinary excretion of creatinine during or soon after the acute phase of kwashiorkor, is not reliable for the estimation of muscle mass.

Serum and Liver Constituents in Protein Malnutrition. The serum levels of total lipids, phospholipids, cholesterol, vitamin A, and carotene were measured in children with kwashiorkor. During recovery, marked increases in all these serum constituents were observed, except for vitamin A in some of the children. Liver biopsy specimens were also studied for the same lipid constituents, except cholesterol. The data indicate that total lipids and vitamin A decrease in liver tissue simultaneously as these components increase in the serum. The findings suggest an initial impairment in lipid and vitamin A blood transport possibly associated with decreases in the plasma protein fractions to which these lipid compounds are normally bound. Phospholipids differ in that they are apparently synthesized in the

liver at a rate sufficient to prevent their decrease in hepatic tissue despite increased removal in the circulation.

All-Vegetable Protein Mixtures. Low-cost vegetable mixtures containing over 25 per cent protein, intended for use in preventing protein malnutrition in technically underdeveloped areas, were fed experimentally to young children. Mixture 8 contained lime-treated corn, sesame flour, cottonseed flour, torula yeast, and dehydrated leaf meal. Mixture 9B, the more practical for Central America, included uncooked ground corn and sorghum, cottonseed flour, torula yeast, calcium carbonate, and vitamin A acetate. Extensive biologic and clinical findings were favorable. Both mixtures are recommended for the supplementary and mixed feeding of infants and young children and as low-cost protein-rich foods of good quality for persons of all ages in areas where the basic ingredients are available and where protein of animal origin is in short supply.

The Challenge of Chronic Disease and Aging. Public health nutrition has specific and valuable contributions to make to programs focused on chronic disease and aging. In this new and challenging field, the ways in which nutritionists can function are limitless. Public health nutrition consultation, patient education, services to institutions, and home care are some of the services discussed. Future trends are also considered.

Diet and Cholesterol and Lipid Levels. Rats were fed isocaloric diets containing lard or cottonseed oil at three levels, with and without cholesterol. Other rats received lecithin at three levels and alfalfa saponin. Rats fed lard and cholesterol had higher serum cholesterol values than those which received cottonseed oil. The reverse picture occurred in the liver, with higher values for cholesterol and lipids when cottonseed oil was fed. Level of fat had slight effect on the serum cholesterol or lipid content. On cholesterol-rich diets, the liver showed a sharp increase in concentration of lipids. The cholesterol:lipid phosphorus ratio of the serum was elevated with cholesterol feeding; female rats showed higher ratios than males, as did rats fed lard as compared with those fed cottonseed oil. Lecithin and saponin feeding prevented this elevation of the cholesterol:phosphorus ratio. Lecithin at the higher levels and saponin prevented the rise in serum and liver lipids that accompanied feeding of lard and cholesterol.

THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

Vol. 241, February, 1961

*Surgery—the intestinal phase of gastric secretion. J. C. Thompson and G. W. Peskin.—p. 253.

Vol. 241, March, 1961

*Comparative toxicology of iron compounds. L. C. Weaver, R. W. Gardier, V. B. Robinson, and C. A. Bunde.—p. 296.

Gastric Secretion. The identity of the intestinal phase stimulus is not fully known. Histamine has been shown to be involved in the intestinal phase of the normal animal following ingestion of meat. It has also been demonstrated that a hormone is released following distention of the small bowel. Whether endogenous histamine is this hormone is unknown. Following portacaval shunting, the intestinal phase is augmented by failure of histamine inactivation. Fasting animals also show increased acid production following shunting, perhaps indicating that failure of inactivation of endogenous histamine may also occur under these circumstances. In this study of the various phases of gastric secretion, chronic histamine administration produced ulceration in 100 per cent of the animals with the three stages of the gastric secretion intact, while only 5 per cent of the single-intestinal-phase dogs developed ulceration. These cases may contribute to the increased problem of peptic ulceration and gastrointestinal bleeding, and it is therefore of great importance to find means of inhibiting the intestinal phase.

Toxicology of Iron Compounds. The principal problems accompanying oral administration of the large number of iron preparations for treating iron deficiency anemia involve gastrointestinal distress and serious iron toxicities. This report pertains to toxicities in animals of a new, high molecular iron-carbohydrate complex compared with other preparations. Studies on mice indicate that iron-carbohydrate complex is less toxic when given by the oral and intraperitoneal routes. It is second in order of toxicity by the intravenous route. Iron-carbohydrate complex produces the least toxic gastrointestinal irritation as indicated by emesis in the dog. Doses of this complex equivalent to 1 gm. elemental iron per day for a month failed to produce local irritation or systemic alteration in dogs.

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

Vol. 81, March, 1961

*Pregnancy toxemia and sodium chloride. W. F. Mengert and D. A. Tacchi.—p. 601.

Sodium Chloride and Pre-Eclampsia. This is a preliminary report on a study made with forty-eight patients with acute vasospastic toxemia of pregnancy. These patients received either a high-salt or a low-salt diet. The average quantity of salt in the high-salt diet was 10.0 to 11.5 gm. sodium chloride (6 to 7 gm. sodium). The low-salt diet contained 0.9 to 1.7 gm. sodium chloride (0.5 to 1.0 gm. sodium). This clinical study continued for eleven months. Basically, no differences were noted between the two series of patients. The authors hope that others will ask the question: "Is sodium chloride etiologically associated with pre-eclampsia?"

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 200, January, 1961

*Humoral nature of hypoglycemia in muscular exercise. M. S. Goldstein.—p. 67.

Hypoglycemia and Muscular Exercise. Muscular exercise leads to hypoglycemia. The glucose transport theory of insulin action places cellular entry of glucose as the limiting step in its rate of metabolism, at rest as well as under exercise. Activation of entry of appropriate sugars by exercise, as a primary event, leads to the augmented rates of glucose metabolism seen with contraction of muscles. The mechanism of hypoglycemia of exercise is shown to be humoral. Blood and lymphatic fluid of working dogs, both normal or diabetic, are shown to develop hypoglycemic properties during exercise which can be transferred to resting preparations. This hypoglycemic factor of muscle work is highly labile and appears to be quite distinct from insulin.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 51, March, 1961

*Activities of the Federal Trade Commission with respect to foods, drugs, and related products. F. W. Irish.—p. 368.

*A comparative study of serum cholesterol levels in school children and their possible relation to atherogenesis. C. G. Hames and B. G. Greenberg.—p. 374.

The Federal Trade Commission. The author summarizes the activities of the Federal Trade Commission. The Commission feels keenly its statutory responsibility to eliminate false advertising, and in recent years has issued an increasing number of complaints and cease-and-desist orders in this field. Corrective action has been taken with respect to health fads and frauds and many misrepresented products in this broad area.

Serum Cholesterol in Children. A comparative study of serum cholesterol levels and their possible relation to atherogenesis was carried out on approximately fourteen hundred school children from six to twenty years of age in Georgia. Beta ratios did not vary with age, except for white males, who exhibited a sudden spurt from ten to eleven years of age. Beta ratios appeared to be higher in the white than the non-white. There was no sex difference in the non-white groups, but the levels of white boys, age six to ten years, were definitely lower than those of the girls and about the same thereafter. Cholesterol levels rose about 2.75 mg. per 100 ml. per year for whites and about 3.8 mg. for non-whites. The study also suggested a need to re-evaluate the concept of a causal connection between serum lipid levels and accumulation of lipids in the arterial wall.

ARCHIVES OF PEDIATRICS

Vol. 78, March, 1961

*A comparative clinical evaluation of infants fed human milk, whole cow's milk and

vegetable fat milk. A. Goalwin and J. Pomeranze.—p. 104.

Infants Fed Various Milks. About three hundred infants were studied for six months on an outpatient basis to determine possible differences between mother's milk, evaporated milk, whole cow's milk, and vegetable-fat formulas with respect to fat tolerance, absorption, utilization, and gastrointestinal disturbances. Weight gains and increments in length were essentially the same in all groups. The incidence of regurgitation, vomiting, diarrhea, and constipation was not significantly different in any of the four groups. Minor symptoms cleared spontaneously while on the same feedings. On the basis of these findings, there is no clinical evidence of superiority of one type of fat over another with respect to the measurements used.

THE CANADIAN MEDICAL ASSOCIATION JOURNAL

Vol. 84, March 18, 1961

*Observations on electrolytes in human saliva. A. Rapoport, B. M. Evans, and H. Wong.—p. 579.

Electrolytes in Human Saliva. Salivary electrolytes were studied in eight hypertensive patients on low-salt intake before and during chlorothiazide administration. The concentrations of most electrolytes were influenced by salivary flow rate. The correlation between concentration and flow rate for some electrolytes, however, was different during the drug administration than before it. While the salivary sodium:potassium ratio may be inversely related to the rate of aldosterone secretion, salivary flow rate must be taken into account in quantitative assessments of this relationship. Sodium and chloride in saliva appear to vary with changes of the same electrolytes in serum, while potassium and *p*H do not.

CIRCULATION

Vol. 23, March, 1961

*The synthesis of phospholipids in human atheromatous lesions. D. B. Zilversmit, E. L. McCandless, P. H. Jordan, Jr., W. S. Henly, and R. F. Ackerman.—p. 370.

Synthesis of Phospholipids. This study of older patients with vascular disease was undertaken to elucidate the mechanisms whereby phospholipids accumulate in the atheromatous lesions of the abdominal aorta and of the larger peripheral arteries. Patients were given test doses of radioactive phosphate intravenously at various intervals prior to removal of a portion of aorta or peripheral artery. Results are compared with findings in rabbits. It is suggested that in man, as well as in the rabbit, the phospholipids of the artery have a metabolism of their own and are not merely static deposits of plasma phospholipids or plasma lipoproteins.

DIABETES

Vol. 10, March-April, 1961

*Defective synthesis of triglyceride fatty acids from I-C-14 acetate in the well-controlled stable adult diabetic. A. R. Hennes and T. W. Redding.—p. 85.

*The incidence of arteriosclerotic heart disease in Negro diabetic patients. R. S. Anderson, A. Ellington, and L. M. Gunter.—p. 114.

Synthesis of Plasma Lipids. None of the diabetic subjects in this study synthesized more than normal amounts of plasma-free cholesterol from I-C-14 acetate. All showed a striking decrease in synthesis of plasma triglyceride fatty acids. These abnormalities occurred despite a normal fasting blood sugar. The presence of a normal fasting blood sugar and plasma lipid levels does not indicate that lipid metabolism in diabetes is normal.

Heart Disease in Negro Diabetics. Of 100 unselected Negro patients from a diabetes clinic, 33 showed evidence of definite arteriosclerotic heart disease, 22 of probable involvement, and 22 of potential. Considering all categories, the prevalence in this group would be 77 per cent. Compared with other clinical studies, these findings do not indicate a lower incidence of arteriosclerotic heart disease in a Negro indigent diabetic population as compared with a predominantly white diabetic population.

FOOD TECHNOLOGY

Vol. 15, March, 1961

*Freezer burn as a limiting factor in the storage of animal tissue. I. Experiments with livers frozen without weight loss. G. Kaess.—p. 122.

*Freezer burn as a limiting factor in the storage of animal tissue. II. Histological study of freezer burn of liver. G. Kaess and J. F. Weidemann.—p. 129.

*The effect of oven air temperature, circulation and pressure on the roasting of top rounds of beef (yield and roasting time). C. M. Schoman, Jr., and C. O. Ball.—p. 133.

*Preservation of fish and shellfish by relatively low doses of beta radiation and antibiotics. P. A. Lerke, L. Farber, and W. Huber.—p. 145.

Freezer-Burn in Liver. Beef liver with varying fat content was frozen and subsequently exposed to slow air flow at −10°C. and relative humidities of 78, 88, and 97 per cent. The development of freezer-burn was observed. Maximum development occurred when samples were rapidly frozen (4 min.) without weight loss. No freezer-burn appeared on fetal livers, but the area and intensity of freezer-burn increased with increasing age of the animal. With livers from fully grown animals, the onset of freezer-burn appeared at relatively low weight loss in storage, independent of the rate of evaporation during storage. The intensity of freezer-burn was independent of fat content. Dehydration losses while holding the samples at 0°C. before freezing caused a small but significant increase in the weight loss needed to produce freezer-burn. Freezer-burn tended to occur at lower weight loss, the lower the rate of evaporation in storage. As freezer-burn damage became more intense, it became progressively more irreversible and while the early stages disappeared on raising the relative humidity, the most advanced stages were evident even after boiling.

Histologic Study of Freezer-Burn of Liver. In sections from samples of liver fixed in the frozen state, dehydration of the surface at −10°C. first brought about the formation of a condensed layer. Then, from this layer, freezer-burn developed, beginning near the surface. As dehydration continued, development of freezer-burn cavities spread to greater depths of the condensed layer, thereby increasing the intensity of the freezer-burn. This development tended to be greatest along the vessels in the tissue and along fibers in the capsule. At the same time, the sharply defined lower boundary of the condensed layer advanced toward the interior, where the sublimation of the ice crystals caused the shrinkage of further tissue and the condensed layer increased in thickness.

Oven Temperature and Roasting of Beef. Using a specially designed oven, the effects of temperature and air circulation on weight and volume yields of beef roasts were studied. The two yield values are directly related. Yield was found to be a function of evaporation loss as decreased temperature and air circulation increased. However, at low temperature, with forced air circulation, and at the pressure of saturated steam (at oven temperature), yield increased and roasting time decreased.

Preservation of Fish and Shellfish. The complementary action of a treatment with chlortetracycline and beta irradiation on the retardation of spoilage of flatfish and rockfish fillets, salmon steaks, precooked tuna lions, cooked crabmeat and shrimp was studied over a range of doses from 11,800 to 280,000 rads. Low doses of beta radiation had a definite, though limited, inhibitory action on spoilage rate. Inhibition is further increased by chlortetracycline. Significant preservation of fatty fish, such as salmon, requires an antioxidant to minimize or prevent fatty changes leading to rancidity. The relative sensitivity of Micrococci, Flavobacteria, Achromobacter, and Pseudomonas species to beta radiation was verified.

GASTROENTEROLOGY

Vol. 40, March, 1961

*An evaluation of the starch tolerance test in pancreatic insufficiency. D. C. H. Sun and H. Shay.—p. 379.

Starch Tolerance Test. A study was done at Temple University on the effectiveness of the starch tolerance test. The test was performed on 101 patients without pancreatic disease and on 43 patients with pancreatic disease. In 15 of the 27 patients with chronic relapsing pancreatitis and in 8 of the 9 with carcinoma of the pancreas, positive results were observed. In 100 patients without pancreatic disease, the test gave a posi-

tive result; a false result occurred with one patient without the disease. Thus, the starch tolerance test appeared to be a reliable indicator when the test was positive but a negative starch tolerance test did not rule out pancreatic disease.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 9, March-April, 1961

*Availability of exchangeable and nonexchangeable strontium-90 to plants. H. Roberts, Jr., and R. G. Menzel.—p. 95.

*Dietary considerations of the radionuclide contamination of nonmilk foods. R. H. Wasserman and C. L. Comar—p. 113.

*Radionuclides in milk. J. E. Campbell, G. K. Murthy, C. P. Straub, K. H. Lewis, and J. G. Terrill.—p. 117.

*Analysis of carotenoids in corn grain. F. W. Quackenbush, J. G. Firch, W. J. Rabourn, M. McQuistan, E. N. Petzold, and T. E. Kargl.—p. 132.

The volatile flavor components of onions. J. F. Carson and F. F. Wong.—p. 140.

*Effect of pyrrolidonecarboxylic acid on flavor of processed fruit and vegetable products. A. A. Mahdi, A. C. Rice, and K. G. Weckel. —p. 143.

Plant Uptake of Strontium-90. Exchangeable and nonexchangeable fractions of strontium-90 were determined in soil samples in the coastal plain of North Carolina in 1955 and 1958. Exchangeable strontium-90 averaged about 10 and 50 micromicrocuries per kilogram soil on the two sampling dates, respectively. Nonexchangeable strontium-90 averaged 4 and 7 micromicrocuries. Lower amounts of both fractions were recovered in samples extracted after dry storage for one year. The uptake of strontium-90 and calcium from these soils was studied by growing cowpeas in the greenhouse. From 8 to 18 per cent of the exchangeable strontium was taken up, depending on the uptake of exchangeable calcium. Use of discrimination factors to determine availability of nonexchangeable strontium-90 to plants is discussed. Nonexchangeable strontium-90 apparently made little or no contribution to uptake.

Radionuclides in Non-Milk Foods. Milk and milk products today contain the highest relative proportion of fission products. However, non-milk foods, especially vegetables and cereals, contribute more strontium-90 to the total diet when considered as an entity. In the future, assuming no further testing, non-milk foods will become even more important as sources of strontium-90, as the soil becomes the primary reservoir of radioactivity entering the food chain. Since cesium-137 in milk and meat arises from a similar precursor (bovine serum), and since there is no apparent discrimination between these compartments, the relative contributions from these two major dietary sources of cesium-137 is not expected to change with time. The variability in the radionuclide content of foods is emphasized.

Radionuclides in Milk. Monthly milk samples from Atlanta, Austin, Chicago, Cincinnati, Fargo-Moorhead, New York City, Sacramento, Salt Lake City, Spokane, and St. Louis were analyzed for calcium and potassium, iodine-131, barium-140, cesium-137, strontium-89, and strontium-90. Analysis of variance applied to these data indicated geographic and seasonal variations. Average strontium-90 and cesium-137 of milk samples from Sacramento were the lowest, while that from St. Louis was the highest. Samples collected during early spring and fall showed higher levels of strontium-90 and cesium-137 than at other times, probably associated with changes in seasonal feeding practices. No relationship was observed between the concentration of these two radionuclides in milk and publicly announced tests. In contrast, a direct relationship was observed between the weapons test and the concentration of iodine-131, barium-140, and strontium-89, which was influenced by the half-life of the radionuclides, the meteorologic conditions, and the geographic location of the sampling stations with respect to the test site. Observed concentrations of radionuclides were below maximum permissible concentrations. The impracticability of estimating concentration of strontium-90 in milk in terms of gross beta-activity or cesium-137 is discussed.

Carotenoids in Corn. The unusually complex system of cartenoid polyenes in yellow corn grain has not permitted complete separation of each entity in a routine system of analysis. However, spectophotometry provides values for three provitamins A and the eight predominant biologically inactive carotenoids. In addition to *cis* isomers of the major polyenes, a number of minor components of the extract were recognized. Calculated provitamin A activity of the extracts from three corn samples agreed with bio-assay results which were obtained with rats. The method shows that wide differences exist in carotenoid distribution in different inbred lines of corn.

Off-Flavors in Foods. The formation of pyrrolidone carboxylic acid (PCA) in processed foods and its effect on flavor were studied. PCA, which is found in all processed fruits and vegetables examined, caused a detectable off-flavor when its concentration exceeded a certain level which varied with different products. In most processed fruits and vegetables, PCA is not a major factor in flavor deterioration.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 175, March 11, 1961

*Nutrition in cancer patients. Letters to the Journal.—p. 924.

Vol. 175, March 18, 1961

*Vitamins, minerals, and anemia. Editorials. —p. 1000.

*Overweight. M. G. Goldner. Questions and Answers.—p. 1034.

Vol. 175, March 25, 1961

*Amino acid distributions in plasma, erythrocytes, leukocytes, and urine. Editorials.—p. 1096.

*Undiagnosed diabetes. A. Marble. Questions and Answers.—p. 1115.

*Gluten-free diet. J. M. Ruffin. Questions and Answers.—p. 116.

Nutrition in Cancer Patients. Most patients with cancer of the gastrointestinal tract, oral cavity, and other areas are unable to eat more than 800 to 1000 calories a day; yet, weight gain is important. To understand the pathologic physiology of weight changes, one must realize that carbohydrate and protein cannot be stored dry, but retain three or more parts of water; fat can be stored in an almost pure state. If the caloric deficit is made up entirely by the catabolism of body fat, the weight loss will be only one-eighth of that resulting from the catabolism of body protein. Dietary management involves furnishing enough protein to maintain nitrogen equilibrium in order to keep weight loss at a minimum and to conserve protein stores of the body.

Vitamins, Minerals, and Anemia. A vitamin-mineral mixture containing the hematopoietic vitamins may be beneficial for the pregnant women; the aged person who cannot eat an adequate diet; the patient with previously diagnosed chronic illness, such as liver disease; and the rapidly growing infant. Otherwise, these mixtures have no therapeutic role, are costly and unnecessary for the healthy person who can eat a nutritious diet. Also, they often mask important symptoms and signs in the anemic patient who has not been diagnosed accurately. The need is for better nutrition education, more research, and greater improvement in the living standard, not a more potent, all-inclusive vitamin-mineral mixture.

Overweight. An inquiry is made as to whether further testing would be indicated in a twenty-two-year-old man who weighs 279 lb. and is 75½ in. tall. His only symptom is easy fatigability. It is felt that unless the clinical examination gives suggestive evidence of endocrine dysfunction, it is most unlikely that hormonal factors contribute to the development of overweight. In the absence of suggestive evidence of hypothyroidism, midbrain or pituitary lesions, or pituitary basophilism, attention should be focused on the patient's diet and activity. If his overweight is not due to a constitutional or genetic variant of heavy bone structure and muscle mass, a dietary and exercise regimen should be planned. Where endocrine factors play a role, they facilitate the imbalance between energy intake and output, but do not cause it.

Amino Acid Distribution. Methods used for measuring concurrent concentrations of unbound amino acid in plasma, erythrocytes, leukocytes, and urine from the study of normal fasting subjects are described. It appears that salt-saturated paper chromatography is a suitable technique for (a) analyses of the concentrations of un-

bound amino acids in the plasma, erythrocytes, and leukocytes and (b) the study of rates of excretion of amino acids in urine of normal human subjects. Mean concentrations of values in the plasma and erythrocytes for some amino acids did not differ significantly, while for others there was a significant difference. Concentrations of amino acids in the leukocytes, except for arginine, were much higher than those in the plasma. In the urine, a reasonably constant excretion rate for the same individual was observed from day to day, whereas a large variation occurred in the excretion rates among different individuals.

Undiagnosed Diabetes. In a middle-aged or elderly person who is overweight and whose unrecognized diabetes is of the type not easily prone to ketosis, weight loss would be beneficial. In the person with diabetes characterized by an easy tendency to keto-acidosis, usually a person with the onset of diabetes before he reaches thirty, weight loss might hasten the development of ketosis by increasing the catabolism of endogenous fat. In such a person, it would be imperative to combine dietary regulation with appropriate amounts of insulin.

Gluten-Free Diet. The gluten-free diet is indicated in any patient having celiac disease or nontropical sprue. In fact, the diet should be used in any patient having steatorrhea in whom the diagnosis is in doubt. Prompt subsidence of symptoms would strongly suggest celiac disease or sprue, whereas failure to respond to the diet should cause one to consider other conditions, such as intestinal lipodystrophy, lymphoma, regional enteritis, or pancreatic insufficiency. The diet is of little or no value after gastric resection or in controlling the diarrhea of ulcerative colitis or the irritable colon syndrome. There are no theoretical reasons for the use of the gluten-free diet, and no one has yet shown just why it is effective.

JOURNAL OF THE DIETETIC ASSOCIATION, VICTORIA

Vol. 11, December, 1960

*Dietetic care of cancer patients. C. N. Turner.—p. 6.

Dietetic Care of Cancer Patients. In the past, it has been common to accept a pessimistic attitude toward the feeding of patients with cancer. In this paper, an Australian research dietitian points out that the dietary care of such a patient is of importance and it is outdated to say diet has no part in the treatment of the patient with cancer. She explains the patient's nutritive needs and the modification of the diet to meet these needs.

JOURNAL OF FOOD SCIENCE (formerly Food Research)

Vol. 26, January-February, 1961

*Thermal destruction of *Streptococcus faecalis* in prepared frozen foods. T. M. Ott, H. M. El-Bisi, and W. B. Esselen.—p. 1.

*Effect of different temperatures on various bacteria isolated from frozen meat pies. K. Kereluk, A. C. Peterson, and M. F. Gunderson.—p. 21.

*The sodium content of Hawaii-grown fruits and vegetables in relation to environment. N. S. Wenkam, C. D. Miller, and Y. Kanehiro.—p. 31.

*Proximate composition of nine species of rockfish. C. E. Thurston.—p. 38.

*Composition of honey. VI. The effect of storage on carbohydrates, acidity and diastase content. J. W. White, Jr., M. L. Riethof, and I. Kushnir.—p. 63.

*The effect of added enzymes upon the free amino acid groups and organoleptic ratings of irradiated beef during storage. R. G. West, A. M. Pearson, and F. J. McArdle.—p. 79.

Thermal Destruction of *S. Faecalis*. Thermal destruction rates of *S. faecalis* were determined in a selected group of precooked frozen meat and fish products. Data on heat transfer through these products in a hot air household electric oven were also obtained. It is concluded that the procedure adopted for establishing the thermal treatment was accurate and proved feasible for this type of product. Based on the thermal resistance of this test strain, the heat treatments recommended on the commercial packages seem to be adequate, provided the heating and cooling procedures are similar to those followed in the present experiments. In one of the five products tested, the processor's minimum recommended heating period fell short of the computed thermal requirement for that product.

Bacteria in Frozen Meat Pies. This investigation was undertaken to show that correct storage temperatures do inhibit the growth of bacteria which might be considered as the source of potential public health hazard. However, certain saprophytic species are able to survive and grow well at the same low temperatures. Cultures were isolated from chicken pies. *E. coli*, *S. faecalis*, and *S. aureus* had a minimum growth temperature between 5° and 10°C. for active reproduction. One *P. fluorescens* culture followed the growth-temperature pattern shown by the previously mentioned organisms and failed to grow at or below 5°C.; the other grew rapidly at 5°C. At refrigerator temperatures, the growth of the psychrophilic saprophytic species tested completely outstripped the growth of several bacteria of public health significance. This indicates the likelihood that a frozen food on defrosting, particularly in a refrigerator, would become completely unacceptable, due to the development of off-flavors and odors and deteriorated physical appearance before it became a health hazard.

Sodium in Hawaiian Produce. Nineteen foods of plant origin, the soil in which they were grown, and the water used for irrigation were assayed for sodium. Samples came from the four major Hawaiian islands. Most fruits and vegetables were low in sodium. A few, such as papaya, beets, celery, daikon, and sweet potato, were high and probably should be omitted from very restricted sodium diets. The sodium of some of the foods varied with the sodium concentration of the soil, which points out the need for considering the source of these foods before using them in a sodium-restricted diet. The results indicate that variations in sodium should be expected in plant foods, although the differences may not always be nutritionally significant.

Proximate Composition of Rockfish. The many species of rockfish found in Pacific Coast waters represent an abundant source of seafood which is available during all seasons. These fillets for the more important commercial species have been found to be high in protein and low in both oil and sodium. The values remain quite uniform for the different species, regardless of the size of the fish, the season of its capture, or the manner in which it is stored and processed. The non-edible parts provide a valuable source of animal food since they are high in protein, oil, and ash.

Composition of Honey. Quantitative examinations have been made of the changes that occur in honey while stored at room temperature. During two years' storage at 26±3°C., about 9 per cent of the monosaccharides were converted per year into more complex disaccharides and higher sugars. The ratio of fructose to glucose increased markedly as the free glucose content declined more rapidly than the free fructose. Significant increases were noted in acidity during storage, but some samples showed no change. Diastase values of unheated honey declined in storage at room temperature (23–28°C.), with diastase showing a half-life of seventeen months under these conditions. Cool or cold storage and expeditious handling are recommended for preservation of diastase in honey.

Storage of Irradiated Beef. The presence of catheptic enzymes in irradiated meat is shown to be responsible for an increase in free amino nitrogen and a decline in panel scores for acceptability as storage progressed. Immediately following irradiation, about one-third of the free amino nitrogen was water soluble, while the remainder was bound to the muscle fibers. After six months' storage, the proportion of free amino nitrogen in the heat-inactivated sample to which the inactive enzyme preparation had been added remained unchanged. However, for the inactivated sample with added active cathepsins, one-third of the free amino nitrogen remained bound to the fibers. In the raw sample, only 15 per cent was bound to the fibers. The addition of catheptic enzymes resulted in the release of a higher proportion of tyrosine and tryptophan than did the naturally occurring enzymes in raw meat.

JOURNAL OF HOME ECONOMICS

Vol. 53, February, 1961

*Teaching nutrition to future professional colleagues. M. A. Ohlson and M. O. Osborn.—p. 86.

*A new approach to employee training. C. E. Kusner.—p. 89.
*So you're a nutritionist! Tell me—just what do you do? I. Bennett.—p. 92.
*Food fads—what protection have we? H. S. Mitchell.—p. 100.
*Utensils for electronic cookery. H. J. Van Zante.—p. 106.

Teaching Nutrition to Future Colleagues. It is suggested that the real contribution of home economics to the education of the medical and dental student is dietetics. Fundamentals may be learned most economically, in terms of both time and instruction costs, if presented in a classroom. However, there is no organized demand for such a course in most institutions, and course offerings will be used only when readily available and when taught by an experienced teacher. At the State University of Iowa, a graduate course in nutrition available to any student offering an adequate science background is now required during the second year of dental training. This course and its application to the needs of the group are described. Nutrition for the medical student can be made vital during the clinical years by the efforts of the adequately prepared dietitian who participates in conferences and ward rounds and takes the initiative in presenting the reasoning and knowledge which explains the food the patient is offered. In the modern medical center, this means, for the dietitian, graduate training in addition to internship.

New Approach to Employee Training. An effective and efficient working force can be developed and maintained only in a climate which permits and fosters individual personal growth. Four aims are particularly important to present-day employee training: (a) showing the employee the value of his contribution to the organization and helping him establish goals toward which to work; (b) achieving good interpersonal relations by learning enough of other employees' responsibilities to respect their contribution; (c) encouraging workers to improve their ability to contribute (through education programs) and in this way improving their ability to earn; and (d) creating an atmosphere in which mutual understanding and appreciation of different cultures and ways of life can be developed.

Career as Nutritionist. The work of the public health nutritionist is often confused with that of the dietitian and the home economist in public welfare work. The career description given here is applicable to both large and small communities and covers four major areas: health district program, nutrition clinics, the daily radio program, and special research projects.

Protection against Food Fads. If it is true that 10 million Americans spend $500 million annually on food fads, it is time that we, as professional people, do something constructive. Nutrition quackery is not only expensive—it is dangerous and belittling to a scientific discipline. Listed are the major agencies concerned with protection and education of the public, along with comments on the responsibilities and limitations of each. They include the Food and Drug Administration, the Federal Trade Commission, the Federal Communications Commission, the U.S. Post Office, private agencies, the American Medical Association, and Better Business Bureaus. Publications of professional organizations help to combat food misinformation; and reliable book lists to give librarians guidance are available (though they must be kept up-to-date).

Utensils for Electronic Cooking. Only pans made of materials transparent to microwaves can be used successfully in electronic cooking (metal reflects microwaves; materials such as glass, earthenware, china, plastic, and paper are more or less transparent to microwaves). This study indicated that when agar was used as the test material, the contents of round pans heated more evenly than the contents of square pans. The agar contents of an ovenproof glass utensil heated more quickly than the contents of an earthenware utensil. A lid on a pan in the electronic range inhibited heating of the contents, but might be necessary at times to retard the loss of moisture. Both glass and earthenware utensils can be used successfully in electronic range cookery.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION

Vol. 36, February 1, 1961

*Serum magnesium in women in the normal state and in certain conditions. G. Achari, K. C. Mishra, K. Achari, R. Ramkissun, and S. N. Upadhyay.—p. 93.

Serum Magnesium in Women. Serum magnesium was estimated in normal, non-pregnant women; in normal pregnant women; in women with eclampsia; and in patients with cancer of the cervix. Serum magnesium values of normal subjects did not differ significantly from those of normal pregnant women. There was a very significant reduction in serum magnesium in eclampsia, and the reduction found in cancer of the cervix was significant. Whether dietary deficiency was responsible in the above pathologic conditions is not established, and whether hypomagnesemia in eclampsia was the cause or the effect is difficult to surmise. However, metabolic studies of magnesium open a new approach to the problems of cancer and eclampsia.

JOURNAL OF NUTRITION

Vol. 73, March, 1961

*Amino acid balance and imbalance. VI. Growth depressions from additions of amino acids to diets low in fibrin. U. S. Kumta, L. G. Elias, and A. E. Harper.—p. 229.
*The effect of different levels of ascorbic acid in the diet of guinea pigs on health, reproduction and survival. O. F. Pye, C. M. Taylor, and P. E. Fontanares.—p. 236.
*Relation of serum tocopherol level to nitrogen retention, creatine, creatinine and free alpha amino acid nitrogen excretion in premature infants. L. O. Lubchenco, J. Butterfield, J. Bergstedt, F. A. Ibbott, and D. O'Brien.—p. 325.
*Various natural and modified bile acids in cholesterol metabolism. O. W. Portman and D. Bruno.—p. 329.

Amino Acid Imbalance. The question of the specificity of the second most limiting amino acids, methionine and phenylalanine, in causing an imbalance in diets containing 6 per cent fibrin was examined. A variety of amino acids and combinations of amino acids caused growth depressions. That caused by leucine was attributed to the antagonism between it and isoleucine and valine. The addition of leucine reduced the efficiency of utilization of isoleucine, valine, and histidine. Additions of certain combinations of the least limiting amino acids, arginine, threonine, and tryptophan, also caused growth depressions of the same magnitude as that caused by methionine and phenylalanine.

Effect of Ascorbic Acid in Guinea Pigs. The effect of four levels of ascorbic acid, namely, 2, 4, 6, or 8 mg. daily, in the diet of guinea pigs on health, reproduction, and survival was investigated. The 8-mg. level was significantly superior to all others in terms of the number of pregnancies per female and in the number of total and living young. The females receiving this level had a somewhat longer reproductive period. Average total birth weight of the young was greater and their period of survival tended to be longer. Under the conditions of stress of pregnancy in this study, the average age at death of the females was respectively for the 2-, 4-, 6-, and 8-mg. levels, 542, 647, 665, and 420 days.

Tocopherol and Nitrogen Metabolism in Prematurity. In premature infants fed an evaporated milk formula without tocopherol supplementation, serum tocopherol levels ranging from 0.04 to 0.54 mg. per 100 ml. were observed. The tocopherol supplement raised the serum tocopherol levels, but was without significant effect on nitrogen retention or on the excretion coefficients of creatine, creatinine, or alpha-amino nitrogen. These results do not indicate a need for special dietary tocopherol supplementation in the premature infant in the first trimester of life.

Dietary Bile Acids. Several bile acids were included in the diet of rats to evaluate their effect on the serum and liver cholesterol concentrations and on serum beta-lipoprotein concentrations. A wide range of values was observed. Some bile acids did not elevate the serum cholesterol. Others resulted in varying degrees of elevation of both serum and liver cholesterol, but none was more active than cholic acid. Triformoxycholanic acid partially inhibited the action of cholic acid when both compounds were fed together, but it was without significant effect on the serum cholesterol of mon-

HELP PREVENT IRON DEFICIENCY ANEMIA IN THE INFANT WITH GERBER BABY CEREALS

Gerber Cereals are excellent carriers of iron to prevent iron deficiency in the infant. Exclusive cereal formulation includes a selected iron salt (sodium iron pyrophosphate) which is as easily absorbed, and to the same degree, as the iron found in natural sources[1]. One-half ounce (6 tablespoons) supplies 7 mg. . . . 100% of the Recommended Daily Dietary Allowance for infants[2].

Vitamin-enriched. The addition of thiamine, riboflavin and niacin supplements the vitamins in the infant's formula.

Gerber Cereals are thoroughly pre-cooked to make them readily digestible. This digestibility makes it possible to start cereal as soon as extra nourishment is indicated. Especially recommended as starting cereals: Rice Cereal and Barley Cereal—one grain and hypo-allergenic.

1. A. M. A. Journal of Diseases of Children **95**: 109-119, 1958
2. Publication 589, National Academy of Sciences, National Research Council, Washington, D. C., 1958

BABIES ARE OUR BUSINESS...OUR ONLY BUSINESS!®

GERBER® BABY FOODS

FREMONT, MICHIGAN

keys. Several other substitute bile acids are being prepared for dietary evaluation in order to gain a more complete picture of those components of the cholic acid molecule which influence the serum cholesterol level. If the most active groupings can be established, it will then be possible to investigate the most appropriate substitutions for the development of an active serum-cholesterol-depressing agent.

THE LANCET

No. 7174, February 25, 1961

*Serum fatty-acid patterns in coronary-artery disease. T. D. V. Lawrie, S. G. McAlpine, B. M. Rifkind, and J. F. Robinson.—p. 421.

No. 7176, March 11, 1961

*Total exchangeable sodium in normal pregnancy and in pre-eclampsia. D. A. Davey, W. J. O'Sullivan, and J. C. McC. Browne.—p. 519.

Serum Fatty Acids in Coronary Artery Disease. Using gas liquid chromatography, fatty acids were analyzed in the three major serum lipid components from eighteen patients with ischemic heart disease. The results were compared with those of a similar analysis previously performed on the serum of sixteen apparently healthy subjects. For most of the acids, including all the major components, there was no significant difference between the two groups. Small differences were present in a few of the minor components. The serum fatty acids were compared with the fatty acids in aortic atherosclerotic tissue, the data for the latter being the figures of Bottcher who used a similar technique. Except for a higher proportion of oleic acid in the aortic tissue, the fatty acid composition of the cholesterol esters and triglycerides was similar. Phospholipids, on the other hand, differed considerably in their composition. Comparisons were also made with the data of Bottcher for the fatty acid composition of atherosclerotic coronary and cerebral tissue. The implications of these findings are discussed.

Exchangeable Sodium in Normal Pregnancy and in Pre-Eclampsia. The total exchangeable sodium has been estimated at 16, 26, 36, and 38 weeks of pregnancy in 107 primigravide, 11 of whom had pre-eclampsia. The normal women showed a uniform increase in total exchangeable sodium between 16 and 36 weeks, the mean rate of increase being 23 mEq per week. Women with essential hypertension did not differ from normal women either in the absolute amount of total exchangeable sodium or in the changes in total exchangeable sodium during pregnancy. These women were, however, heavier and had a smaller sodium/body-weight ratio owing, presumably, to a greater proportion of fat. The mean total exchangeable sodium of pre-eclamptic women with a rise in blood pressure alone was significantly greater at 16 weeks than that of normal women, but the rate of gain of total exchangeable sodium during pregnancy was less. These findings suggest that in pre-eclamptic women with edema and/or albuminuria, there is excessive retention of sodium early in pregnancy, but sodium is lost by the time signs of pre-eclampsia are apparent.

MEDICAL CLINICS OF NORTH AMERICA

Vol. 45, No. 2, March, 1961

*The precursors of hypertension. C. B. Thomas.—p. 259.

*Electrolytes in hypertension: The effects of sodium chloride—The evidence from animal and human studies. G. R. Meneely and L. K. Dahl.—p. 271.

*Diuretics and diet in hypertension. H. P. Dustan.—p. 385.

Precursors of Hypertension. Present evidence indicates that hereditary, physiologic, psychologic, metabolic, and environmental factors may be important precursors of hypertension. The author discusses each and mentions recent work done on each factor. Further investigations are necessary to acquire a clearer picture of the prehypertensive person by means of new observations and more refined methods of measurements.

Electrolytes in Hypertension. Excess sodium chloride as the sole variable in an otherwise wholesome diet can produce hypertension in rats which resembles human hypertension. Experiments showed that extra potassium chloride might have a protective effect in diets high in sodium chloride, as evidenced by increasing longevity. Studies with human beings show that man may require only 1 gm. salt daily. Northern Japanese consuming 26 gm. salt daily showed a 39 per cent incidence of hypertension, while Eskimos on 4 gm. showed none. It may be that hypertensive people have an inborn voracity for salt which becomes activated only when salt is available. Failure of most individuals to develop hypertension on high-salt intakes is compared with failure of most individuals to develop other diseases in which chronic exposure to the cause is a requisite. There is evidence for inherited tendency to hypertension.

Effects of Diuretics and Diet. Low-sodium diets and diuretics can reduce arterial pressure, but patients with high diastolic pressures may not respond as well as those with lower diastolic pressures. Low-sodium diets and diuretics also cause negative sodium and water balance; studies with chlorothiazide suggests that oliguria is the initiating mechanism of action, since the known effects of this diuretic can be removed by administering salt-free dextran. It seems that early effects of chlorothiazide, presumably other diuretics, and low-sodium diets depend largely on oligemia and that negative sodium balance is important because it permits oligemia to occur.

MEDICINE

*Lymphosarcoma: A review of 1269 cases. S. A. Rosenberg, H. D. Diamond, B. Jaslowitz, and L. F. Carver.—p. 31.
Vol. 40, February, 1961

Lymphosarcoma. In this extensive review, comments on metabolic disturbances in lymphosarcoma are of special interest. Regarding the metabolism of uric acid, alkaline phosphatase, calcium, and carbohydrate, the authors conclude: It is probable that in lymphosarcoma, an increased uric acid load is presented to the renal tubules, and that a further rapid increase in uric acid production due to enthusiastic treatment of a sensitive tumor may precipitate a vicious cycle of decreased renal function and a greater degree of hyperuricemia. Studies demonstrating the frequency of elevation of serum alkaline phosphatase suggest that bone changes are involved more often than clinical observation would indicate. Bone lesions, jaundice, or clinical hepatomegaly were seen in a number of patients as serum alkaline phosphatase rose. There are no known abnormalities of carbohydrate metabolism directly related to lymphosarcoma. Extensive replacement of tissue of the pancreas or liver may be expected to produce abnormalities of glucose tolerance and utilization, but such cases are difficult to evaluate. The use of blood transfusions, antibiotics, and analgesic drugs, the correction of fluid and electrolyte disturbances, or the management of heart failure may be of greater importance to the patient with lymphosarcoma than the employment of the so-called specific antitumor agents.

NATURE

Vol. 189, No. 4766, March 4, 1961

*Detection of liver proteins in circulating blood. A. H. Gordon.—p. 727.

Liver Protein Detection. The purpose of the experiments on the livers of rats was to determine the amount of liver protein detectable in the plasma. The first sample of plasma showed that heparin was present to some degree. This plasma contained 3.5 mg. per milliliter liver protein. The other two samples gave 0.23 and 2.2 mg. per milliliter. These figures indicated that 0.5 to 5 per cent of the original intracellular material appeared in the circulating plasma.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 61, February 1, 1961

*Current concepts in diabetes mellitus. Management of the child with diabetes. A. H. Kantrow.—p. 466.

Vol 61, February 15, 1961

*Vital statistics. H. H. Marks.—p. 602.

*Vitamin B_6 and brain function. D. B. McCormick.—p. 617.

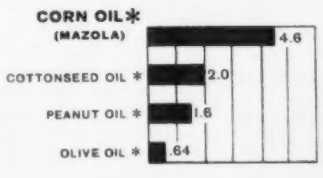
The Child with Diabetes. Acute and chronic infections present the greatest obstacle to the maintenance of good diabetic control in children. The most common chronic infections are those of the upper respiratory tract. One should make a systematic search for obscure infections when a child

Of all leading brands
of vegetable oils...

Mazola®
liquid corn oil
is best for replacing saturated fats

because Mazola is both unexcelled in polyunsaturates (that reduce serum cholesterol) and lowest in saturates (that raise serum cholesterol).

HERE'S PROOF:
This chart shows that the ratio of polyunsaturates to saturates provided by Mazola Corn Oil is more than twice that of any other leading vegetable oil.



*U. S. Dept. of Agriculture Reports—1959

COMPOSITION OF MAZOLA CORN OIL

Mazola Corn Oil has the following average composition:

	Grams/ 100 grams	Grams/ fl. oz. (2 tablespoons)
Fatty Acids		
Polyunsaturates	52-58	14-15.7
Monounsaturates	28-36	7.5-9.7
Saturates	10-14	2.8-3.8
Natural Sitosterols	1 (0.9-1.3)	0.14
Natural Tocopherols	about 0.1	0.015
Cholesterol	none	none
Salt (Sodium chloride)	none	none

Calories—125/tablespoon
Iodine value—124 average

CORN OIL CONTINUES TO BE A PREFERRED VEGETABLE OIL IN NUTRITIONAL STUDIES OF HYPERCHOLESTEROLEMIA.

Your patients will find Mazola Corn Oil ideally suited for salad dressings, baking and frying. By instructing them to use Mazola in place of a substantial portion of more saturated types of fat, and to watch their caloric intake, you frequently will be able to lower the serum cholesterol with minimum changes in eating habits.

MAZOLA CORN OIL IS ALSO AVAILABLE IN CANADA, WESTERN EUROPE, LATIN AMERICA AND MANY OTHER COUNTRIES THROUGHOUT THE WORLD.

FREE!

Valuable aid for guiding your hypercholesterolemic patient in dietary control:

A Pad of Menu Guides based on 2,000 calories per day, with which you may readily construct a diet pattern best suited to your patient's needs.

Just write on your letterhead to:
CORN PRODUCTS COMPANY, 10 EAST 56 STREET, NEW YORK 22, N. Y.

presents unstable control and a rapidly increasing need for insulin. Genito-urinary and dental infections are not infrequently uncovered. Treatment will often be followed by a reduction of insulin requirement and greater stability of control. Acute infections should be treated vigorously with suitable antibiotics. The diet may need to be converted to liquids. Allergic sensitivities to food may be associated with instability of diabetic control. When the offending food is removed from the diet, greater stability is often observed. Milk is not infrequently implicated. Acute and protracted asthmatic attacks may precipitate vomiting, dehydration, acidosis, and even coma. Recommendations for treating diabetic acidosis and insulin reaction are included. Daily urine testing recorded in a diary is recommended as an aid in determining the effect of diet and insulin, and of anticipating infections.

Vital Statistics of Diabetes. In the U.S., diabetes continues to be a medical and public health problem of great magnitude. A recent report gives new facts on the prevalence of disability due to diabetes, and on the status of medical care of patients. The prevalence of known diabetes in the United States is estimated to be about 1.5 million, or 9 per 1000 population. This estimate covers only previously diagnosed cases known to the member of the household who furnished the information and probably understates the true number of cases by reason of the exclusion of the institutionalized population from the survey. Known cases are about one and one-third times as frequent among females as among males for all ages. In both sexes, the reported prevalence of the disease increases with advancing age to a maximum at ages sixty-five to seventy-four years. The majority of the cases are just past midlife; more than 80 per cent are forty-five years of age or older, and nearly 40 per cent are over age sixty-five. No chronic limitation of activity because of the disease was reported by three out of four persons with the disease.

Vitamin B_6 and Brain Function. Perhaps the most striking feature in the syndrome of severe vitamin B_6 deficiency in man and other animals is the convulsive seizures which ensue. Investigations of the nervous systems of pyridoxine-deficient animals revealed that extensive nerve damage occurred. The similarity of the mental aberrations observed in severe vitamin B_6 deficiency, whether induced through chronic dietary exclusion or through acute administration of carbonyl reagents, led to more thorough examinations of the action of these latter compounds on the enzyme systems in the brain which are intimately involved with this vitamin. Many of these reagents are now recognized as stimulants of the central nervous system (psychic energizers) which are finding increasing use in applied medicine. Unraveling their prime sites of action could lead to producton of more effective analeptic agents.

NUTRITION REVIEWS

Vol. 19, March, 1961

*Why is science important? W. Weaver.—p. 65.

The Importance of Science. Four reasons why science is important are presented. The most obvious is that science creates all the basic knowledge which, when applied, leads to a myriad of procedures and things that make life healthy, comfortable, and pleasant. Second, science is important because its healthy and vigorous growth is essential to the economic health and growth of our country. The third reason is closely related to the first two. Science plays a central role in the task of defending our country and in the still broader task of defending the philosophy of the free world. The fourth and final reason is the most outstanding. It is the development of the reasoning mind, of the experiment that seeks facts, of the faith that the universe is reasonable and orderly and the discovery that it is lovely and beautiful.

PEDIATRICS

Vol. 27, March, 1961

*Studies of carbohydrate metabolism in the newborn infant. III. Some factors influencing the capillary blood sugar and the response to glucagon during the first hours of life. M. Cornblath, A. F. Ganzon, D. Nicolopoulos, G. S. Baens, R. J. Hollander, M. H. Gordon, and H. H. Gordon. —p. 378.

Infant Carbohydrate Metabolism. One hundred thirty-nine full-term and ten premature newborn infants were studied. Of these, fifty-one babies served as controls. Blood sugar levels were determined in maternal and cord venous blood at birth and in heel capillary blood at ½, 1, 2, 4, and 6 hr. of age before any feedings were started. Blood sugar levels were determined at 24 hr. of age in those infants who fasted. In fifty-two others, the concentration of sugar in capillary blood was determined prior to intravenous administration of glucagon, 30 mcg. per kilogram, and at ½-hr. intervals thereafter for 2 hr. All but ten of these infants were 3 hr. old or less when the glucagon was given. In forty-six, 300 mcg. glucagon per kilogram was given intravenously at 2 to 3 hr. of age; the concentration of sugar in capillary blood was measured at similar intervals. Pretreatment with dextrose solution for mothers delivered vaginally did not affect the course of blood sugar significantly. Pretreatment with dextrose or saline solution for mothers delivered by caesarian section produced significant differences in the course of the infants' blood sugar. Full-term infants delivered vaginally, who were more than 6 hr. old had a greater hyperglycemic response to 30 mcg. glucagon per kilogram, than infants less than 3 hr. old.

PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE

Volume 106, February, 1961

*Effect of ingested thermally oxidized corn oil on fat composition in the rat. E. G. Perkins, J. G. Endres, and F. A. Kummerow. —p. 370.

Effect of Oxidized Corn Oil on Fat Composition in Rats. Five groups of weanling rats were kept for fifty-nine days in individual cages and fed adequate diets which contained 2 per cent cottonseed oil and 10 per cent of the following fats: corn oil, oxidized corn oil, hydrogenated oxidized corn oil, fatty acids from oxidized corn oil, and 10 per cent oxidized fatty acids plus 90 per cent fresh fatty acids from corn oil. All rats were restricted to the same amount of daily food intake as those fed corn oil, and samples of feces were collected for lipid analysis. The rats were then killed and the extracted carcass lipids converted to methyl esters and subjected to gas liquid chromatographic analysis. The results indicated that hydroxy acids, originating from oxidized fats, were absorbed and deposited, thus influencing the character of the normal mixed fatty acid composition of the carcass fat.

PSYCHOSOMATIC MEDICINE

Vol. 23, January-February, 1961

*Energy dynamics and acute states of arousal in man. M. D. Bogdonoff and E. H. Estes, Jr.—p. 23.

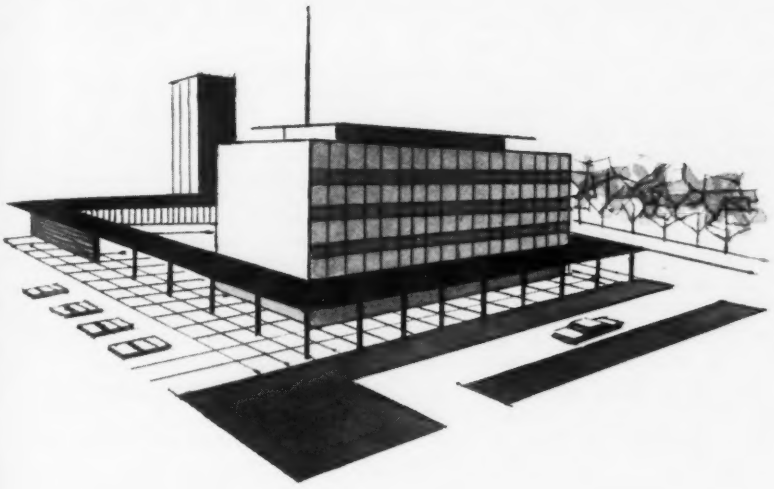
Energy Dynamics in Arousal. In a study of the blood level of free fatty acids (FFA), the direction of change of the plasma FFA levels in the fasted, nonexercising subject was used as an index of balance between lipid storage and lipid mobilization. During periods of acute psychologic arousal, FFA levels rose rapidly and to a significant degree. The change in heart rate, plasma glucose, and urinary excretion of adrenaline suggested that the autonomic nervous system participates in the lipolytic response. Infusion of adrenaline and noradrenaline resulted in rises of FFA levels while the establishment of autonomic-ganglion blockade lowered the FFA levels. An autonomic-ganglion blockade also modified the FFA rise during arousal. Lipid substances are now considered to be the "prime fuel" of muscle.

PUBLIC HEALTH REPORTS

Vol. 76, March, 1961

*A comparative study of caries experience in Adventist and other children. C. J. Donnelly.—p. 209.

Caries in Adventist Children. During 1959, the caries experience of 290 Seventh Day Adventist children living continuously in Maryland was compared with that of 1438 continuous resident public school children of the same area. At certain ages, there are unexplained differences favorable to the Adventist children, in the mean number of decaved, missing, or filled teeth. Further investigation of a pos-



work capacity with no breakfast and a mid-morning break

The experiment* reported here had as its object to show effect of various regimens of breakfast and mid-morning breaks on maximum work output as measured by a bicycle ergometer. Twenty subjects, 18 to 36 years of age, including both office and factory workers participated. The various periods of the experiments used for the comparisons were as follows:

Period 1. Basic breakfast without mid-morning break.
Period 2. No breakfast without mid-morning break.
Period 3. Basic breakfast with mid-morning break.
Period 4. No breakfast with mid-morning break.

"The data seem to justify the following conclusions:

"All subjects did significantly more work when the dietary regimen included an adequate breakfast than when it was omitted.

"The addition of a mid-morning break when an adequate breakfast was eaten resulted in no advantage as far as maximum work output was concerned.

"The addition of a mid-morning break to a dietary regimen which omitted breakfast showed a significant advantage for half of the subjects, in maximum work output.

"The data seem to indicate that an adequate breakfast is better economy as far as capacity to work is concerned than the substitution of a mid-morning break for breakfast."

**Tuttle, W. W., Herbert, Edward: Work Capacity With No Breakfast and a Mid-Morning Break. J. Am. Dietet. A. 137:37, 1960.*

a basic breakfast† used in this experiment followed this moderate low-fat, well-balanced menu.

FRUIT CEREAL MILK BREAD SPREAD

†*A Summary of the Iowa Breakfast Studies, published by Cereal Institute, Inc., May 1, 1957.*

CEREAL INSTITUTE, INC.
135 South La Salle Street, Chicago 3

A research and educational endeavor devoted to the betterment of national nutrition

sible caries-inhibitory factor in the Adventist way of life seems indicated. Because in this study fluoridation may have made the inhibitory factor imperceptible, it would be desirable to select for study an area where caries attack is not influenced by the ingestion of waterborne fluoride.

ROYAL SOCIETY OF HEALTH JOURNAL

Vol. 81, January-February, 1961

*Brucella organisms in milk. L. Robertson.—p. 46.

Brucella in Milk. Infection with brucella organisms is widespread in the dairy herds of Great Britain. During 1958, 34.8 per cent of herd milk examined at the Public Health Laboratory gave positive results with the brucella ring test. Infection in man gives rise to a disease called undulant fever. In most of the large towns, over 99 per cent of the milk is pasteurized. Hence, the risk of infection for those living in the country is much greater than for those living in towns. Although there is a calfhood vaccination against brucella organisms, the only safe milk, at present, is pasteurized milk.

SCIENCE

Vol. 133, March 17, 1961

*Distribution of strontium-90 in a 1959 wheat sample. J. Rivera.—p. 755.

Vol. 133, March 24, 1961

*Distinct "feeding" and "hunger motivating" systems in the lateral hypothalamus of the rat. J. P. Morgane.—p. 887.

Strontium-90 in a Wheat Sample. Knowledge of the mechanism by which plants are contaminated by fallout is essential for the accurate prediction of future levels of strontium-90 in foods. A particularly important fact that must be known is whether plants become contaminated principally from strontium-90 that is absorbed from the soil or from strontium-90 that results from the direct deposition of fallout on the plant surfaces. Analyses conducted by the Health and Safety Laboratory of the U. S. Atomic Energy Commission of wheat and its milling products from 1958 to 1959 crops in the U. S. showed that the highest strontium-90 concentration occurred in the bran fraction of wheat kernels. Similar results were reported by British investigators for wheat grown in the United Kingdom and other countries in 1958. At least 22 per cent of the strontium-90 found in a U. S. sample of wheat harvested in 1959 was due to direct deposition; 27 per cent was contained in the outermost bran layer.

Feeding and Hunger-Motivating Systems. Electrodes were implanted in the middle hypothalamus of rats to determine the neural organization of the "feeding" centers. Stimulations of the far- and mid-lateral hypothalamic area produced feeding responses in sated animals, but only the former caused sated animals to cross an electrified grill to press a lever for food. After lesions had been made in the medial forebrain bundle, however, stimulations in the far-lateral hypothalamic area resulted in feeding in sated animals but failure to cross the electrical barrier. Simultaneous far-lateral and "satiety" center stimulations produced feeding in sated animals but failed to "motivate" grill-crossing behavior.

SOUTH AFRICAN JOURNAL OF LABORATORY AND CLINICAL MEDICINE

Vol. 6, December, 1960

*The health and nutritional status of the Kung Bushmen of South West Africa. B. Bronte-Stewart, O. E. Budtz-Olsen, J. M. Hickley, and J. F. Brock.—p. 187.

Health of Kung Bushmen. An expedition was made in 1952 to the Okavango River territory of South West Africa to investigate the state of the Bushmen at that time and to gain information on comparative racial aspects of health and clinical nutrition. Methods of examination are described. The Kung Bushmen represent a late stone-age culture and have not learned to grow crops or domesticate animals. They live by hunting game and collecting wild vegetation. Periods of starvation are recurrent. Comparisons are made between the Bushmen and the Bantu. Considering the high prevalence of tropical disease, the state of nutrition was not bad. Use of pulp made from nuts and beans as a milk substitute in the post-weaning period apparently avoids the serious protein malnutrition which results from use of maize pap in Bantu and Negro culture through the rest of the African continent. Anemia was rare. Undernutrition was apparently neither severe nor widespread in infants, children, and adults up to forty or fifty years of age. The Bushmen need education about collecting and storage of nuts and beans, and they should be taught to herd sheep or goats and grow crops, if extinction is to be avoided.

SURGERY, GYNECOLOGY, AND OBSTETRICS

Vol. 112, March, 1961

*An estimation of the potassium requirements for equilibrium in burned patients. E. Perason, H. S. Soroff, G. K. Arney, and C. P. Arts.—p. 263.

*The gastric antrum in the operative treatment of duodenal ulcer (collective review). J. C. Thompson and G. W. Peskin. International Abstracts of Surgery.—p. 205.

Treatment of Duodenal Ulcer. In this detailed discussion of the anatomy and physiology of the stomach and gastric antrum, there are descriptions of antral stimulation, effect of antrictomy, antral inhibitory interrelation, antropancreatic interrelation, gastroenterostomy, antral exclusion, subtotal gastrectomy, hemigastrectomy, and vagotomy. There are three possible means for surgical treatment of peptic ulcer: (a) subtotal gastrectomy, (b) 50 per cent segmental gastrectomy plus pyloroplasty, and (c) 40 to 50 per cent gastrectomy plus vagotomy. There is an extremely low rate of recurrence of the ulcer in the latter surgery.

Potassium Needs in Burned Patients. Potassium is generally considered in association with nitrogen in protoplasm rather than as an isolated element. After being burned, a person will lose a great amount of potassium, which may result in negative balance. In a study of eleven burned patients, the intake of potassium in a ratio to nitrogen of 6:1 was adequate to maintain equilibrium. In the final stages of recovery, a potassium:nitrogen ratio of 4:1 was sufficient, as it was for the normal controls.

AMERICAN RESTAURANT

Vol. 45, March 15, 1961

*Room partitions provide more efficient use of space.—p. 30.

*Storage areas. T. Greer.—p. 49.

Vol. 45, April 1, 1961

*Sanitation.—p. 29.

Room Partitions. Folding walls and pneumatic partitions are increasing in popularity with restaurants and hotels. Photographs illustrate how different room arrangements can be achieved. For instance, a large dining room can be converted in a matter of minutes into two areas without cross sound interference by using two folding partitions spaced 3 ft. apart. Pneumatic portable walls come in panels 36 in. wide in various heights, have tongue and groove joints so they may be installed either in a curved or straight-line arrangement, and are available with door panels, pass-through panels, window panels, and interchangeable filler panels. A patented tight seal is provided at floor and ceiling levels.

Storage Areas. The most important principle in planning storage space is one-motion storage — situating the merchandise the shortest distance from the place where it is used first. Multi-purpose storage containers (to be used in freezer, refrigerator, or oven) simplify transferring, cooking, and serving food. Six factors are considered in planning storage space. Photographs illustrate equipment used in refrigerator, dry, and dish storage.

Sanitation. Six areas of sanitation are covered: construction details, adequately determined on the drafting board; planning and assignment of a sanitation program; dishwashing equipment, layout, and procedures; food poisoning, flies and rodents; and restrooms.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 30, March, 1961

*Write your own specifications. J. Kropf.—p. 58.

Writing Specifications. Experience at the University of California, Los Angeles, was that food specifications were not buying acceptable merchandise. To correct the situation, the quotation sheet sent to vendors was scru-

bold concept into modern kitchen design!

MODULAR

The key to modern kitchen design—new Toastmaster Modular cooking equipment! Toastmaster Modular provides volume cooking power in compact "line-up" form—planned to meet your specific requirements. Select from a full line of ranges, ovens, fryers, broilers, and accessories—mix-or-match in any combination. Here is fast, cool, clean electric cooking at its best—styled to give your kitchen that "years ahead" look, and quality-built by Toastmaster!

STREAMLINE YOUR KITCHEN WITH TOASTMASTER MODULAR EQUIPMENT!

Pictured above is the Toastmaster Modular cooking center at Winfield State Hospital, Winfield, Kansas. This 15½′ long installation features a pair of two-pan Toastmaster "All-Purpose" ovens at left, flanked by three famous "Super-T" fryers, an auxiliary Hot Plate range, and a giant-capacity Griddle Top range. Typical of Toastmaster Modular—each "line-up" can be adapted to particular kitchen needs.

Controls are conveniently located at eye level—easy to see and to reach. Sanitation is at its best—new off-the-floor design and gleaming stainless steel finishes permit quick, complete cleaning of the entire cooking area. Whether you're remodeling or building new, your kitchen will look better and cook better with Toastmaster Modular. See your Toastmaster dealer for complete details!

Go ELECTRIC . . . The Complete Line of Electric Cooking Equipment

TOASTMASTER®

"TOASTMASTER" is a registered trademark of McGraw-Edison Co., Elgin, Ill., 1961

TOASTERS • BUN TOASTERS • SANDWICH GRILLS • BROILERS • FRY KETTLES • GRIDDLES • GRILLS • HOT-FOOD SERVERS • HOT PLATES
OVENS • PIZZA OVENS • BUILT-IN COUNTER EQUIPMENT • RANGES • WAFFLE BAKERS • FOOD WARMERS • SINK SANITIZERS • BLENDERS

tinized; a usage analysis (for meat items) was made and 100 items not being bought regularly were eliminated. USDA specifications formed the basis of the new list, but with additions made by consulting food service people, meat companies, and the vendors themselves. In addition, receiving personnel were taught to recognize acceptable products. Typical specifications are given for meats and fresh fruits and vegetables. Suggestions are included for buying whole chucks, removing the eye (serving for beef roast or steak) and using the remainder for grinding.

DRIVE-IN MANAGEMENT

Vol. 20, February, 1961

*Industry problem no. 1: low productivity. L. H. Kotschevar.—p. 20.

*What's your break-even point?—p. 27.

*How to make good food taste even better.—p. 38.

Low Productivity. On the average, a worker in the food industry is only 45 per cent efficient, with 55 per cent of his time being waste or rest. In highly efficient industry, workers produce at the rate of 80 to 85 per cent efficiency. Productivity can be improved through better training, work improvement, labor-saving equipment, and more efficient layouts. To improve the labor market, the public image of the industry must be changed. Unskilled workers must be trained or work provided that they can do (machines to replace skills). There will be more union activity, and plans must be made for it. Realism, assessment of weaknesses, action, and updating of operating methods can increase worker productivity and enlarge profits.

Break-Even Point. Records of an operation can be translated into a chart which shows what your break-even point is in relation to whatever set of conditions apply. These charts, made monthly, will point to errors in management. Directions are given for making the chart and plotting figures. Ways of using the chart are suggested (aid to budget control, improving sales, investment and credit control, determining price policy, and so on). Working with an accountant or bookkeeper on the development of a suitable record system is a prerequisite.

Flavoring with MSG. The qualities and use of monosodium glutamate are set forth. A chart is included which lists the amount to use per 100 portions of various foods. Instructions are given for the addition of the seasoning to various kinds of meat, fish, poultry, vegetables, soups, sauces, gravies, cheese dishes, and salads.

FOOD ENGINEERING

Vol. 33, February, 1961

*Science and food—today and tomorrow. F. K. Lawler.—p. 42.

Vol. 33, March, 1961

*Freeze-drying—where it stands in Europe.—p. 31.

*Fast and easy job-study improves labor efficiency. R. A. Keppeler, C. W. Hall, and P. J. Thorson.—p. 50.

*Computers—for more efficient management. R. D. Kornblum.—p. 63.

Science and Food. Authorities from food manufacturing, Food and Drug Administration, nutrition, medicine, and chemical processing participated in an analytical program sponsored by the Food Protection Committee in December 1960. Impressions from the symposium included the following: (a) There will be no distinction between industrial and agricultural foods. (b) Understanding biochemical activity in cells will help solve major problems with respect to safe levels of synthesized chemicals. However, progress depends on the willingness of the chemical and food industry to support research and take capital risk. The desire for zero risk with food additives is a deterrent to progress. (c) All materials in food should be evaluated nutritionally in three zones of quantity (no significant biologic effect, biologic effect observed, and injury clearly evident). (d) Accelerated progress is imperative in meeting the deficiency of good quality protein foods in underdeveloped countries. (e) Americans need understanding (in lay terms) about the abundance and wholesomeness of our food supply. (f) Convenience foods and quality are the other challenges (freeze-dried foods and "chef service" built in at the factory are examples). (g) Provision of information is needed for the physician on the composition of foods and their utility as special-purpose foods. (h) Potential hazards associated with food additives can be controlled. Improvements in analytical equipment and techniques aid here. For instance, tissue culture may be used to observe the effect on growth of a variety of chemicals in a test-tube manner; sometimes nutritional changes too subtle to be detected in the intact animal may be noted. Microbiologic procedures might be substituted for long, costly animal feeding.

Freeze-Drying in Europe. The European approach to freeze-drying of foods is characterized by basic scientific study of lyophilization phenomena whereas, in the U.S., emphasis is on applied research to further commercial development. Described are the techniques and foods being used at such places as Barcelona (study of lyophilization of biologic and pharmaceutical materials); Oss, Holland (dry soup mixes); and Aberdeen, Scotland (experimental factory established by the British Ministry of Agriculture, Fisheries, and Food). Drying costs present the biggest problem in consumer acceptance.

Job Performance. Presented here is a method of checking labor utilization: the occurrence study technique for analysis of repetitive or non-repetitive work of human beings rather than machines. The nine-step procedure is outlined. As the result of finding the standard time for an operation, it is possible to: (a) determine the time needed to produce a given number of units, (b) determine the operating efficiency of a department, (c) re-apportion work (d) revise wage incentive systems, and (e) estimate costs.

Electronic Computers. Explained here is the working of a digital computor, whose information may be stored by one of four methods—core storage memory, magnetic drum storage, magnetic disc storage, or magnetic tape. As an illustration of its use, the inventory control system employed by a food processor with 5000 employees is outlined. Applications of the computor may be found in sales analysis, production control, maintenance, engineering (process-design problems), and accounting. Manufacturers' services are explained, as are "library program routines," and rental and cost information.

FOOD SERVICE MAGAZINE

Vol. 23, February, 1961

*Let's make kitchens "workable." A. C. Avery.—p. 17.

*Spark Lenten sales with seafood. J. R. Myers.—p. 20.

*Favorite foods of the Armed Forces. H. Sanstadt.—p. 28.

Vol. 23, March, 1961

*61 money-saving ideas for practical sanitation.—p. 35.

*What does modernization cost? D. W. Stewart.—p. 41.

*They practice what they preach. A. Rindy.—p. 47.

*Low temperature roasting cuts meat shrinkage. D. W. Stewart.—p. 49.

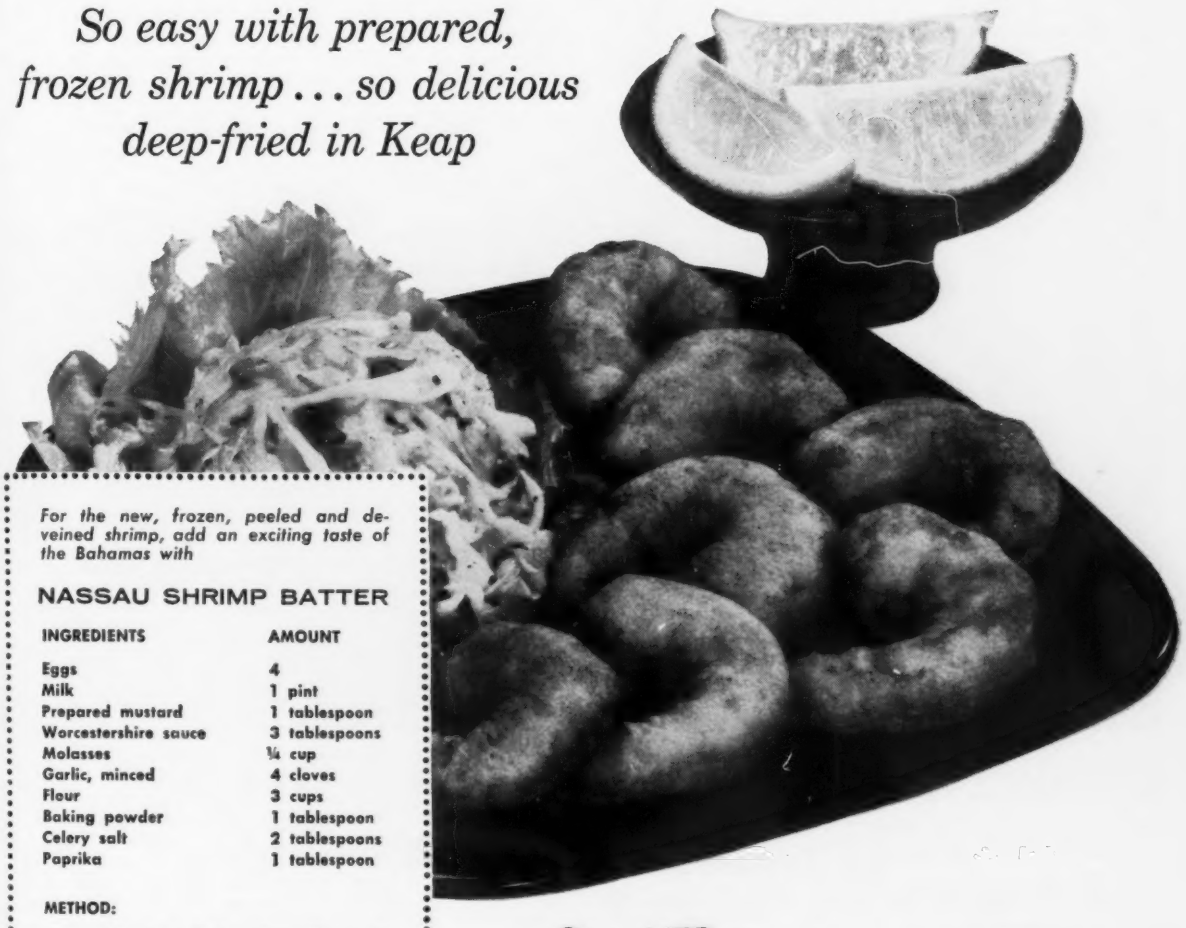
Workable Kitchens. Maximum production from kitchen employees depends on the best possible use of the human machine. Human engineering is defined as "the design of human tasks, man-made systems, and specific items of man-operated equipment for the most effective accomplishment of the job." A cook does his best job when room air is 65°-70°F. in winter and 69°-73°F. in summer. Such temperatures do not seem impossible when one realizes that half the heat put into the kitchen never gets into the food. Air conditioning and humidity regulation, proper use of color, and noise regulation are other factors influencing employee comfort. Specific information on color and light reflection of ceiling, upper and lower walls, floor, and equipment is included.

Seafood Sales. An industry survey of several thousand operators (both commercial and non-commercial) indicates that 90 per cent serve one or more kinds of seafood. Fish received the highest rating, shrimp was second in popularity, followed by tuna, scallops, canned salmon, sardines, lobster, and lobster tails. The 4-oz. breaded fish portion was most favored, except for schools which favored the 1-oz. portion. Shrimp and fish sticks were the favorites with children. Electric fry kettles were most used for frying fish.

Practical Sanitation. Sixty-one concise suggestions for improving sanitation range from printing translated

You can make news with *fancy-fried shrimp*

So easy with prepared, frozen shrimp . . . so delicious deep-fried in Keap



For the new, frozen, peeled and deveined shrimp, add an exciting taste of the Bahamas with

NASSAU SHRIMP BATTER

INGREDIENTS	AMOUNT
Eggs	4
Milk	1 pint
Prepared mustard	1 tablespoon
Worcestershire sauce	3 tablespoons
Molasses	¼ cup
Garlic, minced	4 cloves
Flour	3 cups
Baking powder	1 tablespoon
Celery salt	2 tablespoons
Paprika	1 tablespoon

METHOD:

1. Combine ingredients. Mix until smooth.
2. Flour the cleaned raw shrimp lightly before dipping in batter.
3. Deep fry in Keap heated to 375°.

For the new, frozen, breaded shrimp, add your own special distinctiveness with

SERVING TIPS

Sprinkle with onion or garlic powder. Serve with barbecue sauce.

Sprinkle with curry powder, garnish with chutney.

Sprinkle with chili powder, serve with tartar sauce.

Serve with sauce of chopped fresh herbs such as parsley or dill, cooked in Kneedit Margarine. Or serve with lemon-garlic butter.

Sprinkle with Parmesan cheese, serve with cocktail sauce.

Quik-Tips from Wesson for Extra Profits

- With preparation time for deep-fried shrimp at a minimum, you can profit from serving America's favorite seafood every day. It's easy to add sparkling variety with different sauces, sprinkles, garnishes.
- Continuous volume frying is quick, profitable. Choose Keap, the "for frying only" shortening for high stability. Developed for potato chippers, Keap seldom if ever has to be changed if you filter frequently and replace about 20% daily.
- There's never a worry about flavor-transfer with all-vegetable, perfectly bland Keap.

The Wesson® People

New Orleans, La.

Makers of Heavy-Duty MFB . . . Keap . . . Quik-Blend . . . Meedo . . . Quiko . . . Task

work procedures for foreign-speaking employees, to installing bottle and can crushers, to more attractive employee uniforms, and to the many phases of dishwashing.

Cost of Modernization. A new kitchen may seem out of the question financially. However, food service equipment financing is a reality in Canton, Ohio, where a kitchen equipment dealer and a local bank have cooperated on such a plan. A minimum down payment of 25 per cent is made. Then the dealer applies to the bank for a loan on behalf of the customer. The current interest rate for such loans is 6 per cent. The transaction is described, charts show how monthly payments are determined and how to calculate depreciation on new equipment. A daily payment plan for smaller loans is outlined.

A.M.A. Cafeteria. From an efficient all-electric kitchen comes lunch and two coffee breaks for the 700 employees of the American Medical Association. Meat, fish, poultry, and combination meat dishes are served every day. Wide use is made of instant nonfat milk solids, cutting costs 50 per cent whenever they are substituted. A quantity recipe for seafood Newburgh using instant milk is included.

Low-Temperature Roasting. Meat roasting tests conducted by an electric company showed dramatic results. Shrinkage, using oven temperatures of 200°F., was cut to as low as 10.1 per cent (contrasted to 25 per cent at conventional roasting temperatures). Details of the experiment are given. In addition to cost advantages, flavor was exceptional, meat was the desired brownness, and the pan was not burned (eliminating scouring).

FROSTED FOOD FIELD

Vol. 32, February, 1961

*Which flexible packaging for what frozen products?—p. 34.

*Freeze-drying: the present outlook.—p. 37.

*Bacteriology for frozen food processors.—p. 51.

*What time and temperature can do. W. A. Maclinn.—p. 74.

Flexible Packaging. Both boilable-pouch and free-flowing frozen products call for flexible packaging, of which four types are available: (a) a polyester film, (b) polyethylene, (c) aluminum foil, or (d) combinations of these. The most important of these to the frozen food industry is polyethylene. (Cellophane is another flexible material, but its properties make it unsuitable for the required uses.) The properties of each of these materials are discussed and charted. The following combinations are also considered; polyethylene-polyester laminate (expensive), polyethylene-paper laminate (inferior in its oxygen and moisture-barrier properties), and aluminum foil-polyethylene combination (extremely low tensile strength).

Freeze-Drying. The first organization in the U.S. to utilize freeze-drying on a commercial basis is currently freeze-drying shrimp (350,000 lb. wet weight annually). Another company has followed with dehydrated chicken-rice and mushroom soups, and a meat packer supplied Sir Edmund Hillary's second Mt. Everest expedition with freeze-dried steaks, lamb chops, chicken, shrimp, and stew components. At least ten other companies are working with freeze-drying on a pilot plant level and a number are test-marketing their products. The process, including reconstitution, is described, and advantages are cited. Immediate advances in the field will probably be directed towards preservation of components to improve quality of already existing products (components such as egg albumen for cake mixes, beef extracts, sausage meat, and fruit for the pie baking and ice cream industries). Cost factors are analyzed, freeze-drying equipment (vacuum-drying units in particular) is described, packaging development is mentioned, and equipment suppliers are listed.

Bacteriology and Frozen Food. This extensive article is a "short course" on the principal characteristics of bacteria, growth factors, the use of the microscope and types of staining, cultures, bacteriologic media, and methods of identification. Bacteria causing spoilage in frozen foods are considered along with sanitation procedures.

Variables of Time and Temperature. Activities of the Refrigeration Research Foundation since World War II are described. It was instrumental in initiating and sponsoring an investigation on the recommended holding temperatures for frozen foods (0°F. being the most practical temperature). Another part of the investigation was to determine the average experience of frozen foods in marketing channels. The next step was to ascertain the rate at which quality changes became noticeable at temperatures higher than 0°F. but still without becoming thawed (resulting statistics are listed). Basic advice coming from this research is included.

HOSPITAL PROGRESS

Vol. 42, March, 1961

*Mobile equipment simplifies tray service. Sr. M. Imeldine.—p. 92.

Mobile Equipment for Tray Service. At St. Francis Hospital, Milwaukee, entirely mobile equipment is used in the central tray service system, except for the tray assembly line itself. It takes 9 seconds for a tray to go through the line and be loaded for distribution. Types of equipment are described, including hot beverage stations, salad and dessert stations, cold food stations, hot food stations, soup and cereal cart, room temperature stations, dish dispensers, tray delivery carts, the trays and tray transfer racks. The system is explained.

HOSPITALS

Vol. 35, March 1, 1961

*Salad superlatives to spark Lenten menus.—p. 97.

Vol. 35, March 16, 1961

*Administrative-dietary rounds build rapport, improve service. M. Baggan and J. S. Kowal.—p. 93.

Salad Superlatives. Quantity recipes are given for these attractive, special salads: triple apple salad mold, cranberry-pear salad plate, tuna-almond salad in puff shells, zesty citrus salad, spring salad rings, sunny fruit salad, shrimp-potato salad, top hat pear salad, and egg salad poinsettia style. Hotbread accompaniments include prune-orange-nut bread, applesauce biscuits, and cranberry glazed rolls.

Administrative-Dietary Rounds. Weekly visits to the ten ward kitchens are made by the Assistant Director and Chief Dietitian of Mount Auburn Hospital, Cambridge, Massachusetts. The purposes of this plan are to improve patient service, confer with charge nurses, and occasionally visit patients. No schedule is made for these visits—a day is chosen at random. Administrative meetings are held each Friday to discuss the dietary department. The entire procedure is a pleasant, informal one. It has improved dietary service and established good relationships between dietary, nursing, and administration personnel.

INPLANT FOOD MANAGEMENT

Vol. 8, March, 1961

*University food service . . . the Duke program. W. A. Raleigh, Jr.—p. 22.

Duke University Food Service. This campus serves nearly four million meals yearly at twelve dining halls. Diversified service ranges from food grills to cafeterias; to table service; to banquets, buffets, and receptions; and to night catering for men's dormitories. In the offing is an "air-court" (a shopping center or free-flow type of feeding operation to accommodate as many as 1600 students at a time). For the most part, men students are on a "pay-as-you-go" plan; women students pay for food service on a contract-board basis. The advantages of the plan for women are discussed (relating to parent preference and protection from social pressures and diet fads). Suppliers of equipment are listed according to type. The cost control system and employee training (a two-year training school is in operation) are described. There is less than 5 per cent turnover in a work force of over two hundred regular employees.

INSTITUTIONS

Vol. 48, April, 1961

*Designers data book.—p. 87.

*Head off union conflicts. R. Markowitz.—p. 103.

*Sanitation for food service workers. T. M. Richardson.—p. 124.

Designer's Data Book. This new feature is a source of basic information on layout and equipment to be used as a guide in design and purchasing. Pots and pans are featured. Requirements are charted for schools (200 to 1000 meals daily), for public restaurants (20 to 156 seats), and for

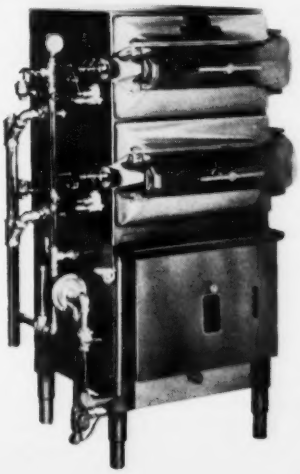
"We cook faster with Less Shrinkage in our new GAS-operated STEAM-CHEF"

Martin Ditch, Chef, Fireside Inn, Omaha, Nebraska

"Since we changed to Gas and Steam-Chef in our new, all-gas kitchen we cook faster and easier... meats shrink less... clean-up is faster and safer... and we use far less time in reconstituting frozen foods," says Chef Martin Ditch.

No wonder Dan and Ralph Cohen, owners of the Fireside Inn at Omaha, are sold on their new gas-operated Steam-Chef. It's one of their hardest working pieces of equipment, handling all steam cooking for a really busy restaurant in only a few square feet of floor space.

Gas-operated Super Generator STEAM-CHEF. Available with 2 or 3 compartments; 4 or 6 bushel capacity. ASME-approved evaporators, copper heaters, corrosion resistors, automatic pilots, low water cut-off.



With a gas-operated Steam-Chef, you get all the advantages of modern gas cooking ... speed, precise control, flexibility, cleanliness, safety, dependability and unbeatable fuel economy. You're money ahead with gas and Steam-Chef.

For information on the complete line of gas-operated Steam-Chef units, call the Commercial Sales Specialist at your local Gas Company. Or write to Cleveland Range Company, 971 East 63rd St., Cleveland 3, Ohio. *American Gas Association*

FOR ALL COMMERCIAL COOKING ...GAS IS GOOD BUSINESS!

an employee cafeteria serving 1500 meals.

Hospitals and Union Conflicts. Many hospitals follow personnel practices which unions criticize. Suggestions are given as to how hospitals can improve working conditions and morale without becoming subservient to unions' whims. A realistic wage scale is imperative. Fringe benefits comparable to those provided in other industries are "musts." Among other factors to be noted are promotions, communication of information, and a formalized grievance procedure.

Sanitation. A master's thesis, taking the form of a 144-page discussion of food sanitation regulations in the U.S., provides opinions on why sanitation measures fail (lack of understanding and uniform regulations) and suggests an ordinance representing the most rigid applications found in each area that would be acceptable for universal application. The second part of this article deals with the question, "Are advance set-ups (setting tables before customers arrive) in accordance with sanitation requirements?" Present regulations are not clear on this point. Reader opinion is invited.

THE MODERN HOSPITAL

Vol. 96, March, 1961

*Work sampling simplifies work scheduling. B. Donaldson.—p. 144.

*These signs lead supervisors to a sound training program. J. Hartman.—p. 150.

Work Sampling. Two research projects were conducted at the University of Wisconsin to test the feasability of using the work sampling technique to measure the performance of dietary personnel. The activities of seven main kitchen employees in one hospital were analyzed, to provide basic data for more effective classification and scheduling of personnel. In addition, the technique was used to analyze the management activities of four food production managers performing at the middle management level. Work sampling was found to be an extremely useful and inexpensive device for making a general survey of total department activity and for determining activities of professional dietary personnel. It shows how well the objectives of the dietary department are being accomplished and how effectively the resources of time, money, equipment, and personnel are being utilized.

Training Tips. The supervisor's attitude and approach in training programs can make the difference between success and failure. First, temper control is essential—serenity is akin to security. Sincerity, genuine interest in people, and giving credit where credit is due, all lead to healthy personnel relations. Taking advantage of continuing educational opportunities and current, pertinent sources of information is vital to the life of any organization. Another point: the trainer must provide guidance and leadership without interfering with the authority that has been delegated to the trainee. Finally, training must be a continuing program, one that is understood and accepted.

NRA NEWS

Vol. 4, February, 1961

*"L & L" (layout and listing) to make menus sell. A. G. Seaberg.—p. 17.

Menu Layout. An easy-to-read, attractive menu means greater sales. Three basic ways to list information are illustrated: the square layout, the symmetrical "Christmas tree" layout, and the asymmetrical or dynamic flush-left layout. Categories of food and layouts for effective identification are also discussed and portrayed. Descriptive copy about the restaurant, the cuisine, or both, should be separated from the food sections of the menu.

PROFESSIONAL NURSING HOME

Vol. 3, April, 1961

*Team approach to menu planning can improve meals. J. Hartman and M. Zickefoose.—p. 14.

Team Meal Planning. Both the administrator and cook have knowledge to contribute to meal planning in nursing homes. Four aspects of meal planning are discussed: (a) meeting nutritional needs within budgetary limits and facilities and equipment available; (b) variety through color, flavor, texture, preparation methods, and different combinations; (c) planning ahead with cycle menus; and (d) considering food habits and cultural background.

RESTAURANT MANAGEMENT

Vol. 88, March, 1961

*Genie in a pouch. W. M. Shields, Jr.—p. 72.

*Care and maintenance of stainless steels. Part VII. Counters, backbars, display cases, related equipment. R. E. Paret.—p. 82.

Vol. 88, April, 1961

*Soft ice cream graduates to the quality restaurant. C. Pensinger.—p. 68.

Pouched Food. Quality, convenience, and economy are among the selling points of "boil-in-the-bag" frozen foods. Within the next five years production could reach more than double what it was in 1959. Pouched breakfasts will open up a tremendous market. Potatoes—hash brown, cottage, and home fries; French toast and sirup; fried and scrambled eggs; omelets; and pancakes are all being tested for early morning eaters. "Thaw-in-bags" also open up areas for individual servings of desserts — fruits, cake slices, pudding, soufflés, and foreign delicacies, such as crepes Suzette en flambe. Other possibilities are "bake-in-bags" and "broil-in-bags."

Care of Stainless Steel. Short-order eating establishments use much stainless steel because of its attractiveness, durability, and resistance to stains. Instructions are given for care of counter tops, sinks, and drainboards; shelves and drawers; mechanical devices, such as sirup pumps and cream dispensers; ice cream cabinets and utensils; and foot rails, tubular feet, and tray slides.

Soft Ice Cream. A soft ice cream machine means greater variety and glamour in desserts, reduced labor costs, and increased profits. Fresh mixes may be obtained from the local dairy. Parfaits can be made easily, dipping of hard ice cream is eliminated. For the diet-conscious, low-calorie mixtures can replace whipped cream. There is greater use in a machine capable of producing a product that can be held in a standard upright or under-counter freezer for more than 48 hr. The function of the soft ice cream machine in a restaurant is not the same as for the average snack bar or drive-in. Location and operation of the machine are discussed.

THE SANITARIAN

Vol. 23, January-February, 1961

*Model food ordinance—new developments and approaches. W. V. Hickey.—p. 198.

Model Food Ordinance. Stated here are the thinking and aims of the Public Health Service Food Establishment Sanitation Advisory Committee, which has been working for over three years on a new "Food Service Sanitation Manual" to serve as a guide to state and local health departments. There has been a complete departure from the old format of former Codes and Ordinances. Greater stress is placed on good daily practices, proper use of equipment, approved methods, and more enlightened food service operators and employees. Enforcement methods are still under discussion, and it is probable that several will be set forth in the document, leaving it to the local agency to make its choice. Questions still to be answered involve the effective use of the Manual by sanitarians, food service operators, and food handlers.

SCHOOL LUNCH JOURNAL

Vol. 15, March, 1961

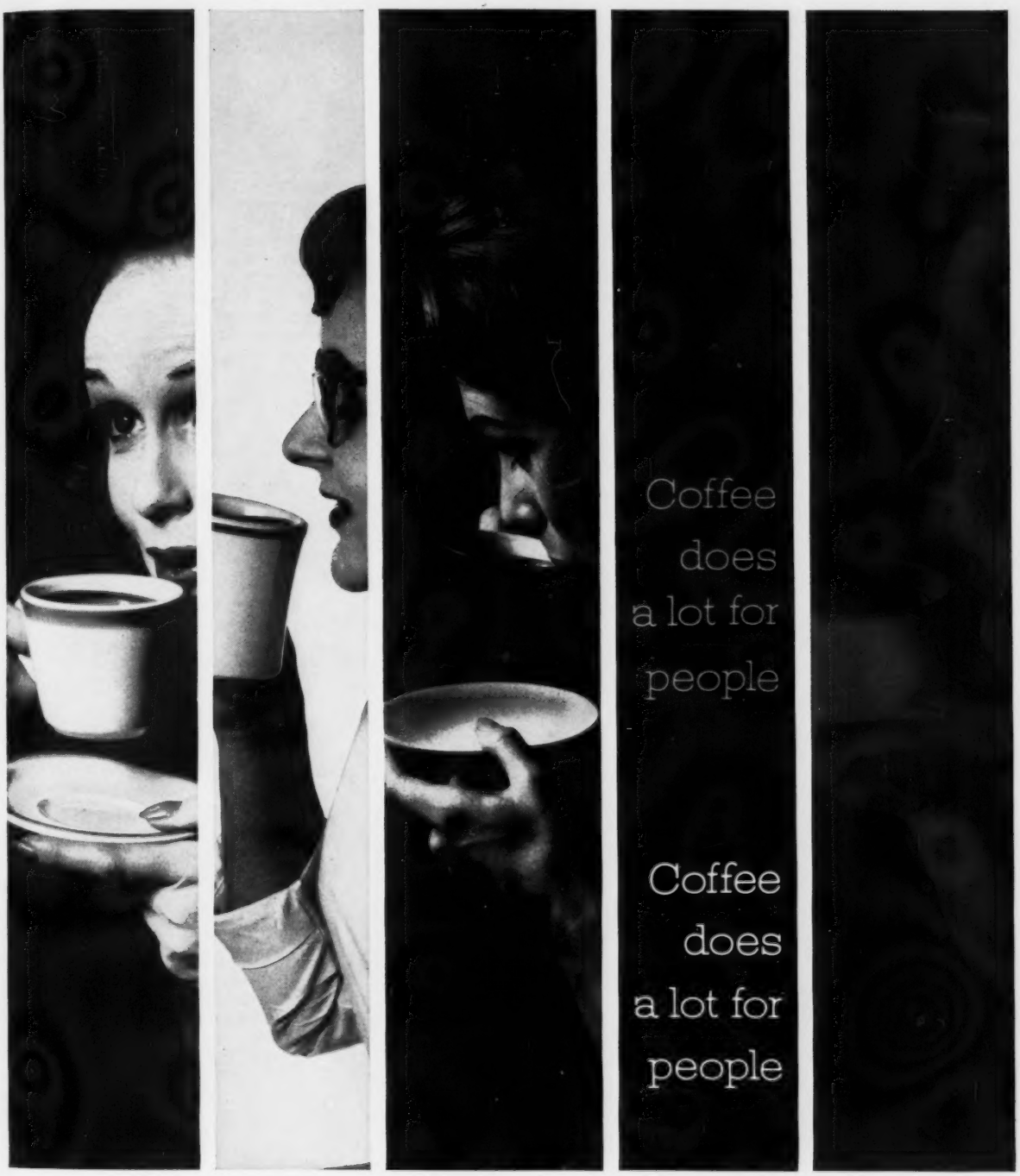
*Nutrition applied to school lunch. M. Mitchell.—p. 13.

*Experimental workshops. N. Carpenter.—p. 40.

*The school administrator's responsibility for safety. Part III.—p. 64.

Nutrition and School Lunch. This succinct explanation of nutritional requirements of school children includes, in simple terms, information on the need and sources of carbohydrates, protein, essential vitamins, and minerals. The school lunch program should go far beyond supplying one nutritionally balanced meal a day; it is a tool to educate students in nutrition, sanitation, courtesy, and consideration of others.

Experimental Workshops. Three neighboring school districts in Saratoga County, New York, decided to hold school lunch in-service training workshops (four a year). The program, now in its third year, has become an established procedure and was developed through suggestions of the personnel. Demonstrations of recipes and equipment, group discussion of



CONTINENTAL does a lot for coffee

From the incomparable growing fields of Central and South America comes the CONTINENTAL coffee bean. After the most scrupulous blending, roasting and grinding by men to whom coffee is almost a sacred subject, it's worthy of the CONTINENTAL label. Serving this matchless coffee could do a lot for you and your people.

CONTINENTAL COFFEE

Continental Coffee COMPANY America's Leading Coffee *for restaurants, hotels and institutions*
Roasting Plants From Coast to Coast • Main Plant: Chicago, Illinois

mutual problems, convention reports, and lectures on use and care of equipment make up the programs. Improved work habits and skills, self-confidence, and better understanding of the importance of school lunch have resulted.

The School Administrator and Lunchroom Safety. This is the third and final section of a series released by the National Safety Council. Listed are the safe work practices for the following: (a) receiving and storage operations; (b) food preparation operations, including use of knives and handling of china and glassware; (c) food serving operations; and (d) dish clearing and cleaning. Safety tips for all school lunch personnel are included.

VOLUME FEEDING MANAGEMENT

Vol. 16, April, 1961

*Salad dressing variants. E. Blair.—p. 13.
*Flavor and freshness from cook to customer. —p. 24.
*Noise abatement ideas. O. Webber.—p. 43.
Soda fountain equipment. Production evaluation report.—p. 49.

Salad Dressings. The basic dressings — French, mayonnaise, sour cream, and "salad dressing" (oil content 30 per cent compared with 65 per cent for mayonnaise)—are described, and combinations and additions suggested. Also mentioned are cooked dressings, cottage or cream cheese dressings, hot vinegar-bacon dressing, and dressing mixes. Six recipes are included.

Cook to Customer. Memorial Hospital, Long Beach, California, serves 400 patients each day and provides cafeteria and coffee shop service. Kitchen workflow is efficient; the bakery, salad and vegetable areas, and butcher shop are each located adjacent to its own refrigerator or storage area. Production lines all converge at the mobile tray assembly line—a conveyor system constructed perpendicular to the general flow of food production. Basic fiberglass trays act as holders for two half-trays, one for cold foods, the other for hot foods. The large hot and cold tray mobile tray carrier is described and illustrated as are the details of the system.

Noise Abatement. Attention is turned to equipment which will absorb noise. In the dishwashing area, suggestions are included for metal dishtables, the washing machine itself, and the pot scullery. In the kitchen area, sliding doors on warmers, floors, trucking equipment, motor - driven equipment, and metal utensil drawers are mentioned. Cafeteria and dining room equipment to reduce noise include cafeteria counters, communication doors, trays, chair legs, and tables. Diagrams are included for a quieting metal dishtable, "by-pass" steam injector, and warmer storage.

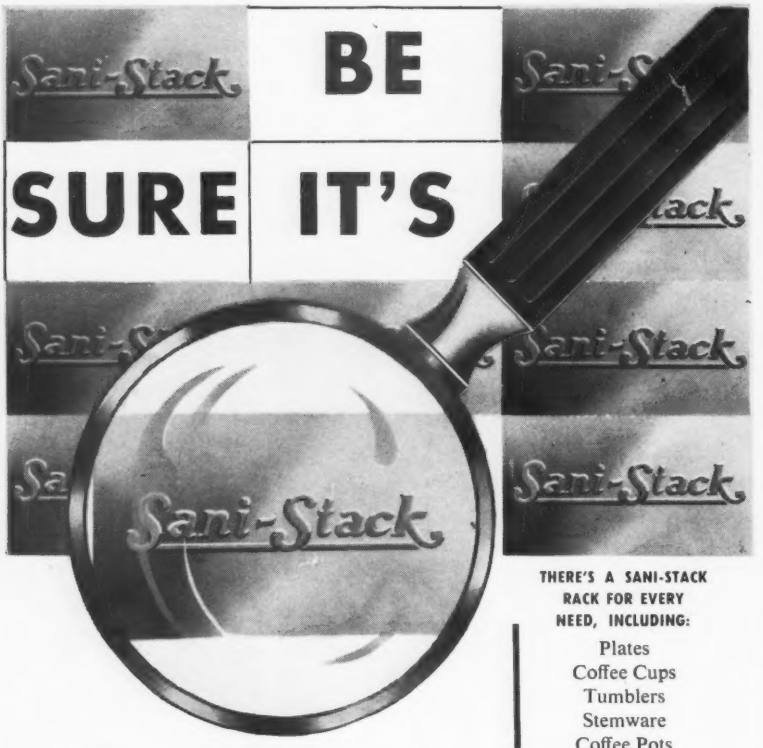
WHAT'S NEW IN HOME ECONOMICS

Vol. 25, April, 1961

*Nutrients in processed foods.—p. 20.
*Food for survival demonstration.—p. 93.

Nutrition in Processed Foods. Modern canning and freezing methods give the American consumer foods with minimal nutritive losses. Vitamin loss may be less than in similar goods bought "fresh" on the market after fairly long shipping time and storage, and after exposure to customary home cooking methods. Processing of grains and cereal products has resulted in the preservation or addition of nutrients; canned meats retain all of the protein, carbohydrate, and minerals of the fresh meats; and infant and junior foods are high in essential nutrients.

Food for Survival. A Civil Defense project exhibited at the National Canners Association convention included a food-for-survival demonstration. The exhibit was a specially erected fallout shelter equipped with beds, cooking utensils, and other items needed by a family for a two-week period. Each day a different couple and infant lived in the prototype shelter. A typical fourteen-day emergency canned food supply is listed, along with four luncheon menus and preparation ideas. The desirability of rotating a family's shelter supply is stressed. One way of doing this is to have the family schedule periodic meals from the emergency supplies as a "practice" meal, with the foods that are used promptly replaced so as to keep the emergency supply on hand.



THERE'S A SANI-STACK RACK FOR EVERY NEED, INCLUDING:

Plates
Coffee Cups
Tumblers
Stemware
Coffee Pots
Bouillon Cups
Silver
Trays
Bowls
Creamers
Coffee Hottles

Not all racks are Sani-Stacks. When you see the Sani-Stack seal you can be sure it is the best. And whatever the job, whatever the dishwashing need, there's a Sani-Stack in stock to do it best. You name it. If it doesn't exist, Metro will design and produce it for you.

For all your rack requirements – specify Sani-Stack. You can be sure it's real when you see the Sani-Stack seal. Accept no Sani-Stack substitute.

Send for "The Sani-Stack System." It shows how to save money in dish handling and illustrates the superior features of Sani-Stack.

Over 30 years experience solving your dish handling problems.

Sani-Stack

A quality product of
METROPOLITAN WIRE GOODS CORP.
N. Washington St. and George Ave. • Wilkes-Barre, Pa.

Camtrays

...now protected against BACTERIAL contamination

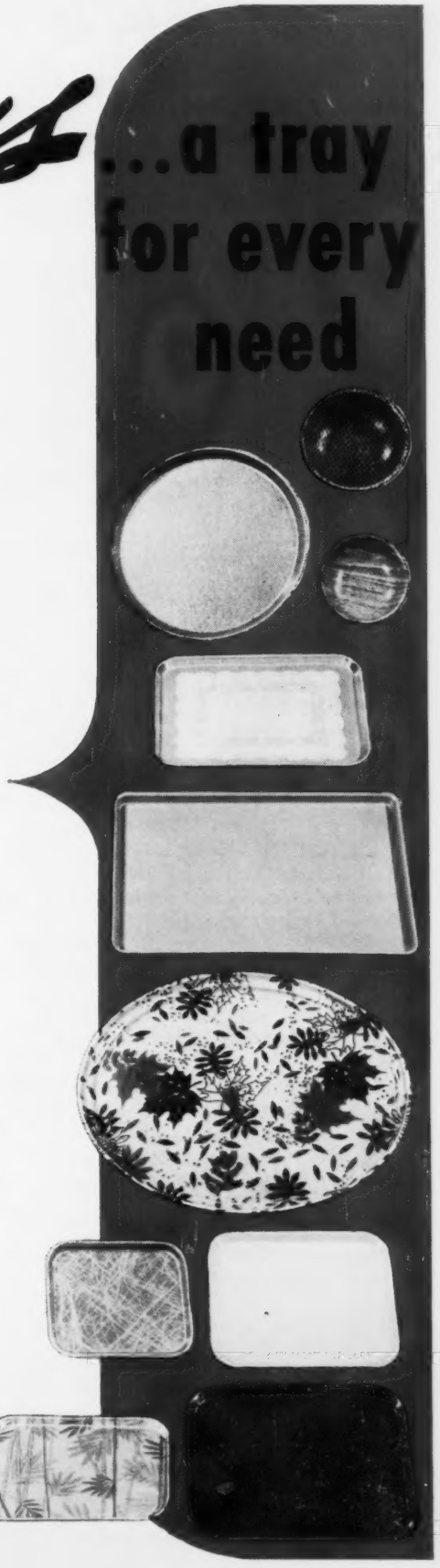
WITH

permanent perma chem® protection

EXCLUSIVELY IN

Camtrays

Protection against bacteria and mold by Permachem is an integral part of Camtrays. The Permachem Corp. developed another outstanding formulation exclusively for Cambro Products. It contains no phenols or mercurial compounds. Molded-in Permachem action retains its effectiveness for the life of the product.



For full-color showing of entire Camtray line, write:
CAMBRO INCORPORATED
214 Fifth St., Huntington Beach, Calif.

Your 44th Annual Meeting

October 24-27, 1961
St. Louis, Missouri

Kiel Auditorium, St. Louis

IN EARLY periods of this country's history, St. Louis served as the starting point of explorations far and wide into the wilderness. This year, the city's role will be reversed. St. Louis will be the hub of scientific research and development. It will be the center of warm welcome to members converging there from every state in the Union.

The framework of activities which will take place from October 21 through 27 is brought to you early so that you may start now to plan your attendance at the Meeting.

Saturday, October 21

Morning and afternoon

Conference of Directors and Staffs of Approved Dietetic Internships (closed meeting)

Sunday, October 22

Afternoon

Conference of Faculties of College and University Home Economics Departments and Approved Dietetic Internships (closed meeting)

General registration

Evening

Orientation of delegates to the House of Delegates (closed meeting)

Monday, October 23

Morning and afternoon

Meeting of the House of Delegates (Other members of the Association are encouraged to audit this important meeting.)

General registration—8:30 a.m.–8 p.m.

Evening—Pre-Annual Meeting general session

Tuesday, October 24

8:30 a.m.–4 p.m.—Registration, Kiel Auditorium

8:30 a.m.–5 p.m.—Visit exhibits

Morning

Meeting of the House of Delegates (Other members of the Association are encouraged to audit this meeting.)

Opening session

Afternoon

Sessions

Business Meeting of members of the Association

Evening—General session

Wednesday, October 25

8:30 a.m.–4 p.m.—Registration

9 a.m.–5 p.m.—Visit exhibits

Morning

Conferences

Breakfast and meeting for present and incoming executive boards of state dietetic associations

Sessions

Afternoon

Sessions

The A.D.A. Executive Board "at home" to dietetic interns

Evening—free evening

College and university alumnae functions

Thursday, October 26

8:30 a.m.–4 p.m.—Registration

9 a.m.–4 p.m.—Visit exhibits

Morning

Conferences

Dietetic internship alumnae breakfasts

Sessions

Afternoon—sessions

Evening—Annual Banquet

Friday, October 27

Morning

Dietetic internship alumnae breakfasts

9 a.m.-12 noon—Registration

Sessions and conferences

Noon—History of The American Dietetic Association Luncheon

Afternoon—Sessions closing at 4 p.m.

Watch your ***JOURNAL*** *for further news about the Annual Meeting.*

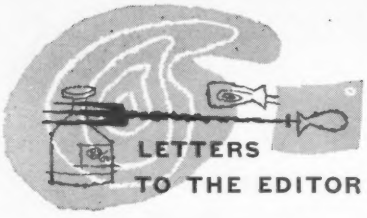
Make creamy mashed with Kraft's new *complete* Instants. Flute 'em around steak, pipe 'em on slashed franks, or fill foil boats. No. 10 tin makes about 145 3-oz. servings.

Everybody's happy!

NO MORE waste,
special storage,
trimming, spoilage,
cutting, eyeing,
mashing, sorting,
peeling, slicing

Use Kraft Slices for hot or cold potato salad, au gratin casseroles, brabant potatoes, or wherever you need slices. 2¼-lb. pkg. makes 1½-gal. cooked potatoes.

KRAFT...for good food and good food ideas



Gratitude for an Army Dietitian's Thoughtfulness

TO THE EDITOR:

For years, I have wanted to thank an unknown dietitian for her kindness to my son, Corporal Robert Lamar Damon, U.S. Marine Corps Reserve, who was stricken with poliomyelitis, March 11, 1945, in the Philippines. Excerpts from a letter received from Capt. Irvin H. Ahfeld, MAC, the Evacuation Officer, will explain our deep appreciation to that dietitian:

"About 7:30 in the morning, I arrived at the Receiving Office where patients were being admitted. I was greeted in a quiet voice by your son, Robert, 'Good morning, Sir.' The nurses informed me that he had just been seen by the doctor and that everything possible was being done to make your son comfortable. I chatted with him on the way to the ward where the doctors and technicians were preparing a new type of respirator for him. It was then that I learned of his serious condition and the urgent need to obtain transportation to another hospital in the rear area where special equipment was available.

"The Commanding Officer saw that a plane was made available immediately. In less than 4 hr. after your son's arrival, he was at the airport, ready for evacuation. Just before we left the hospital, *our dietitian came rushing out to the ambulance carrying a basket containing a thermos bottle of something to drink and a few home-made cookies she had just finished baking. They looked so good, I couldn't refuse when Bob told me to help myself* (italics mine).

"When we arrived at the field, the plane's motors were warming up. The pilot waved that all was in readiness, the attendants carefully placed the apparatus aboard, while the doctor gave last minute instructions to the nurse and pilot. When I was assured that all was as it should be, I asked Robert if there was anything else we could do for him. He was so pleased with the *cookies*, and the excitement of the plane ride seemed to have taken his thoughts away from any troubles that he might have had. Never once did he forget to smile."

Now, on the sixteenth anniversary of my son's death, I am asking that you publish as much of this as possible, so that, should that dietitian happen to read it, she will know her kindness has lingered gratefully in my memory all these years?—*Mildred Lee Damon, Executive Housekeeper, Southern Pacific Hospital, Houston.*

Flour for Gluten-Free Bread

TO THE EDITOR:

The February issue of your JOURNAL contained an abstract of an article by F. Townsend and A. Rowe, "Gluten-Free Bread for Coeliacs," from the September 1960 issue of *Journal of the Dietetic Association Victoria.* It is unfortunate that the authors did not specify wheaten starch in the bread formula. The product generally marketed as "corn flour" in Australia is wheaten starch derived from the wheat gluten washing industry. "Corn flour" used in our formula refers specifically to wheaten starch of nitrogen assay less than 0.075 per cent. Starches from other sources failed to give the same good result when used in the same way. Starches have varying capacities for water absorption depending on their source, and we think that it is only necessary to ascertain the requirement for water in order to produce a successful loaf.—*Lois Linton-Smith, Dairy Research Section, C.S.I.R.O., Highett, Victoria, Australia.*

The Dietitian in the Philippines

TO THE EDITOR:

Since 1954, we have been working for recognition of dietetics as a profession in the Philippines. Finally, on June 18, 1960, a law was enacted " . . . for the regulation of the practice of dietetics in the Philippines." Its implementation will require all hospitals of 200 beds and over to employ qualified dietitians, the number increasing in proportion to bed capacity. Among other things, too, the law requires nutrition graduates to pass an examination before they can be registered dietitians. The Bureau of Civil Service which supervises the administration of all such examinations is still in the process of screening members for the Board of Examiners. I am proud that I have been one of those nominated, although no one can predict the appointments, which will be made by the President of the Philippines.

You may recall that I was the first to head a Dietary Department district from the Nursing Service. This was at the training hospital of the University of the Philippines. I opened an internship there. Last year I accepted the position of Chief Dietitian in the newly opened Ramon Magsaysay Memorial Medical Center. This is smaller than the University of the Philippines Medical Center, but there is a challenge here. I started all over again from the planning of the kitchen layout to organization of the department and this year, to the opening of an internship. I feel I can do much more by opening this new service than by staying at my old job, as my assistants there have already been trained to carry on. With other girls coming back from training in the States, more and more hospitals are getting qualified people who, in turn, can train. Right now we already have four hospitals giving dietetic internships. We have tried to maintain high standards, and I often hear from my former interns who have found jobs elsewhere, even in U. S. hospitals, who appreciate having gone through the training we had to offer.—*Preciosa Irma Florentin, Ramon Magsaysay Memorial Medical Center, Quezon City, Philippines.*

Dietetics in South Africa

TO THE EDITOR:

The South African Dietetic and Home Economics Association was founded in 1953 by a number of dietitians who felt the need of an organized body to strengthen their status and generally promote their professional interests. Because they are comparatively few in number and somewhat scattered over a large country, home economists were invited to join as well, as they also were without a representative body. At present, there are seventy members, of whom forty-eight are dietitians.

Three of the nine universities in South Africa offer a Bachelor of Science degree in either dietetics or home economics. Both degree courses require four years. Hospital dietitians must also satisfactorily complete an internship of six months. The diploma is granted by the university concerned, not by the hospital.

We are unable as yet to publish a journal, but we do issue a quarterly news bulletin which contains articles of interest to both professions, in both official languages — Afrikaans and English. It also serves as a contact with members who live too far to be able to attend our meetings.

Normally, we hold four meetings a year. To three of these we invite guest speakers, generally well known in the fields of dietetics, home economics, nutrition, or medicine.

The activities of the Association include:

(a) The definition and consolidation of the status, emoluments, and conditions of service of dietitians, especially in hospitals.

(b) The provision of technical training facilities for non-professional institutional personnel.

(c) The rationalization of home economics as a school subject in the light of modern trends.

(d) The promotion of home economics and dietetics as careers.

(e) The establishment of bursaries for the training of students.

In this country, dietitians and home economists are employed by schools, training colleges, universities, hospitals, and state departments. The Technical Services Division of the government's Department of Agriculture is the most important employer.

The main function of dietitians in the Department of Agriculture is to combat malnutrition by spreading nutritional knowledge to all sections of the population. To this end, the fullest use is made of all possible media—lectures, broadcasts, press and popular articles, exhibitions, and film shows. The films used are mostly American, but so far four films have been produced by the Department of Education, Arts and Science, in collaboration with the Dietetic Services. It is expected that this branch of activities will be considerably developed.

In addition, dietitians draw up ration scales for state institutions, advise state food service units and industrial feeding schemes, furnish general information on therapeutic diets, provide recipes for specialized dishes, and compile food budgets for various races and income groups. In recent months, the last named service has enjoyed particular popularity throughout the land.

The Dietetic Services operate from four regional offices, and dietitians undertake extensive tours in their respective districts. Further, in conjunction with the National Nutrition Research Institute, they take part in nutrition research projects. At the moment, two big undertakings are receiving special attention: the nutrition and dental health research project and the prison research project on diet and metabolism relating to cardiovascular disease.—*L. Johanna Louw, Head, Dietetic Services, Department of Agricultural Technical Services, Union of South Africa, Pretoria.*

Is There Value in Sea Salt?

TO THE EDITOR:

In the Columbus area recently, much publicity has been given to the desirability of using Sea Salt instead of regular table salt. Is Sea Salt therapeutically valuable in any way? What reply can be made to the claim that it should be used instead of iodized table salt? A 1-lb., 10-oz. package of Sea Salt sells for $1.50 in Columbus, as compared with 15 cents for the same amount of iodized salt.—*Margaret M. Hinkle, Columbus, Ohio.*

EDITOR'S NOTE:

You will probably be interested in the National Better Business Bureau's Service Bulletin Periodical No. 1721, December 30, 1960, entitled: "Sea Water—The Newest 'Medical Panacea'?" The conclusion in this Bulletin is: "Medical research to date has not shown that arthritis, cancer, diabetes and other conditions named in sea water advertisements result from a deficiency of trace chemicals. NBBB knows of no evidence that the addition to the normal diet of trace amounts of chemicals, such as those contained in sea water, would be of any benefit whatever to persons afflicted with such conditions, nor has any firm selling sea water submitted any evidence in substantiation of the purported benefits claimed in advertising. Therefore, it is our belief that unless or until scientific data becomes available which would establish that sea water has some therapeutic value for humans, further advertising of such products for human consumption is not in the public interest."

The American Medical Association has also "debunked" such claims. In the January 21, 1961 issue of J.A.M.A., Ogden C. Johnson, Ph.D., in answer to a question, stated: "The average mixed American diet contains adequate amounts of vitamins and minerals. The importance of such minerals as iodine, copper, and iron in our diet has been demonstrated, but except for iodine and iron, it is not possible to demonstrate a deficiency . . . We have carefully studied the information contained in several bulletins regarding sea salts, particularly in regard to the nutritional claims that have been made. These claims are typical of the claims made by food faddists regarding minerals in our diet."

For the best solution to every TOAST problem...
There's no substitute for
Savory
Savory
Fast, convenient and dependable toasting during busy meal times is the answer to a serious problem—in hospitals, schools and institutions.
Undersized or inadequate toasting equipment creates service delays and appetite appeal may be destroyed unless toast is served crisp, fresh and hot.
Savory automatic conveyor type toasters provide the greatest toast production possible—6 to 12 slices per minute—and perfect golden brown toast every time.
Ask your Kitchen Equipment Dealer to show you how Savory can speed up food service and provide greater economies, or write:
Savory
EQUIPMENT, INCORPORATED
120 Pacific St., Newark, N. J.

Awards. Fredrick J. Stare, M. D., Ph.D., has been named recipient of the 1961 *Joseph Goldberger Award* for outstanding work in the field of clinical nutrition. The Award—a plaque and a $1000 honorarium—will be presented by the American Medical Association and the Nutrition Foundation at the A.M.A.'s Annual Meeting in New York City on June 26. Dr. Stare, who is Chairman, Department of Nutrition, Harvard University School of Public Health, will present the Goldberger lecture at the Scientific Assembly. He is recognized for his studies on the relation of diet to atherosclerosis and coronary heart disease. Well known to members of A.D.A., he has appeared on the program of our Annual Meeting a number of times and has published papers in this JOURNAL.

* * * *

The *Nicholas Appert Award* medallist this year is Dr. Helmut C. Diehl, pioneer research scientist and administrator in the field of frozen foods and refrigeration. The Award, which consists of a bronze medal and an honorarium of $1000, is considered by many as the "Nobel Prize" of the profession of food technologists and food scientists. Dr. Diehl for many years was associated with the U. S. Department of Agriculture. In 1931, he established the Frozen Pack Laboratory in Seattle, and from 1941 to 1943 was Chief, Commodity Processing Division, Western Regional Research Laboratory. From 1944 to 1958, he served as Director of The Refrigeration Research Foundation. The Award was presented to Dr. Diehl on May 9 at the 21st Annual Meeting of the Institute of Food Technologists.

Members Receive *Institutions'* Honors. Winners in the *Institutions Magazine* annual Food Service Contest were honored on May 23 at a special dinner in Chicago. Included in the roster of awardees were four A.D.A. members who were named as designers or co-designers of their installations. They were: Margaret Terrell, University Hospital, University of Washington, Seattle—a Merit Award; Marjorie Reed, Washington University, St. Louis—a Merit Award; Rosemary Burns, Ralston Purina Company, St. Louis—an Honor Award; and Sister Rose Alma, St. Joseph's Hospital, St. Paul—an Honor Award.

Convention for Canadian Dietitians. Vancouver will be the scene of the annual convention of the Canadian Dietetic Association, June 13 to 15. Dr. Brock Chisholm, World Federation of Mental Health, will present the Violet Ryley-Kathleen Jeffs Memorial Lecture, an annual feature of the Canadian Association's program. Other presentations will include a discussion of some aspects of professionalism by Dr. Jennie Rowntree, former Director, School of Home Economics, University of Washington, Seattle; and a paper on "Health and Trace Elements" by Dr. Harry B. Warren, Department of Geology and Geography, University of British Columbia.

Coming Events. 46th Annual Convention, *Catholic Hospital Association*, Detroit—June 12 to 15.

52nd Annual Meeting, *American Home Economics Association*, Cleveland—June 27 to 30.

15th Annual Convention, *American School Food Service Association*, Denver—July 30 to August 3.

44th Annual Meeting, *The American Dietetic Association*, St. Louis—October 24 to 27.

89th Annual Meeting, *American Public Health Association*, Detroit—November 13 to 27.

Three foods are on the USDA's list of "plentifuls" for June:

Chickens—broilers and fryers
Milk and dairy products
Potatoes

Air Force Dietitians Meet. April 10 to 11, a two-day conference for Air Force dietitians was held in Washington, in the Office of the Surgeon General. The program dealt with in-service training of food service personnel. The Air Force Medical Service has developed a training guide for non-professional hospital food service supervisors which will be used as a standard in all hospitals. Later, it is planned that a formal training course for these supervisors will be established. Brig. Gen. Raymond T. Jenkins, USAF, MC, conducted the program, assisted by Grace Stumpf, University of Michigan Hospital, and Dietetic Consultant to the Surgeon General.

Frozen Foods for June. With vacation schedules cutting down on the number of employees available, the National Association of Frozen Food Packers suggests that frozen foods can reduce labor time required in preparing many foods. To that end, they recommend the following frozen foods as being generally available in institutional-size packs during June.

Frozen Fruits

BLUEBERRIES—Put right in the muffin batter without defrosting. Blueberry muffins provide an excellent hot bread choice for summer salad lunches.

RED RASPBERRIES—These shapely berries are delightful in combination with other fruits for dessert or appetizer.

PEACHES — Peaches 'n cream or peaches 'n crust (in pastry shells) are delightful. Or, just peaches for calorie-counters.

FROZEN CONCENTRATED ORANGE JUICE —Space saving in the way it is packaged. The perfect eye-opener in the morning, or picker-upper for a mid-meal snack.

Frozen Vegetables

BROCCOLI—Serve with Hollandaise sauce, butter, or margarine. This green-stalk vegetable adds to the attractiveness of any plate, no matter what the meat.

MIXED VEGETABLES—Use in casseroles, soups, and stews. And, serve as the vegetable itself.

CORN—For a midwestern touch, make a cream sauce for frozen corn; for southwestern style, add tomato sauce and peppers; for southern style, combine with Lima beans and perhaps add cream.

PEAS—A menu favorite wherever you are located—and what is easier to serve than frozen peas requiring no labor cost?

New Fellowships and Scholarships. The School of Home Economics, *Drexel Institute of Technology*, Philadelphia, has received a four-year scholarship from Campbell Soup Company to start in the fall semester of 1961. The recipient—to be a freshman with an outstanding high school record and interest in the food field—will receive a sum of $2000 for each of her four years of college. Selection will be made by Drexel, based on ability and financial need. Additionally, an unrestricted grant of $1000 has been given to Dr. James Creese, President of Drexel. It is expected that this sum will be given each of the four years the scholarship winner attends the college.

* * * *

At *Columbia University's* Institute of Nutrition Sciences, the way has been paved by a $78,000 grant from seven major U. S. food processors for an attack on the critical shortage of trained nutritionists and food technologists in underdeveloped countries. The grant will bring thirteen foreign students to study at Columbia. The program is designed to train leaders who, on return to their homelands, can train others and develop effective public health and nutrition programs. Particular emphasis will be given to countries in which malnutrition is a significant problem. The program is designed to give advanced students an understanding of food supplies, food technology, human nutritional requirements, the nature of deficiency diseases, nutrition in preventive medicine, and problems involved in changing food habits of large groups of people. According to Dr. W. H. Sebrell, Jr., Director of the Institute, the graduates will be competent: (a) to identify the nature of critical nutrition

THE BEST FOOD DESERVES THE FINEST COOKIES

All dressed up in NABISCO'S Individual Service Packets, COOKIE TREATS are a sweet and appetizing sight with ice cream, gelatin desserts and beverages. Each package contains two oven-fresh cookies—one chocolate, one vanilla. It's a good way to tell your customers that you believe in quality products. Easy, economical to serve, cuts food cost—no waste of time, no waste of cookies, thanks to the moistureproof cellophane packets. Just over a penny and a half per packet! ®

SEND FOR FREE BOOKLET AND SAMPLES

NATIONAL BISCUIT Co., Dept. 27-F
425 Park Avenue, New York 22, N.Y.

Name ..... Title .....
Organization .....
Address .....
City ..... Zone ... State .....

deficiencies; (b) with knowledge of indigenous agricultural resources, to determine dietary adjustments; and (c) with public health training and nutrition education, to initiate action within their own geographic areas. The course of study will cover one academic year, beginning in September. Although preference will be given to physicians, the minimum requirement for admission is a Bachelor of Science degree with an interest in public health.

The following companies have contributed money for one or more fellowships: The Borden Company, Campbell Soup Company, Corn Products Company, General Foods Corporation, General Mills, Inc., H. J. Heinz Company, and the Pillsbury Company. Each fellowship will be identified by the name of the sponsoring company.

Fulbright Opening for 1962-63. At the University of New England in Australia, nutrition is now under consideration as a subject leading to a special degree. A Fulbright Scholarship for 1962-63 will be available for a visiting scholar to survey the teaching and research aspects of food chemistry and to advise on suitable lines of development for this subject in the proposed program in nutrition. Further information may be obtained from: Conference Board of Associated Research Councils, 2101 Constitution Avenue, Washington 25, D. C.

Publications. "Tips on Selecting Fruits and Vegetables" (USDA Marketing Bulletin 13) gives details on seventy-five different items of fresh produce, covering the range available on markets the year around. It also tells about standardized grades, gives general suggestions on buying, and pricing.

* * * *

A second new USDA booklet, "Food Costs" (Miscellaneous Publication No. 856), includes reports on the economics of food prices. General topics cover the farmer's share of the nation's food expenses, the food purchasing power of an hour's work, food prices in relation to the Consumer Price Index, the consumer's annual expenditures for food, and so on. Bar and line charts serve to visualize changes over the last few years.

Single copies of both of these USDA publications may be requested from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

* * * *

Some 250 resident camps and more than 100 day camp programs in the U. S. are listed in the newly revised "Directory of Camps for the Handicapped" published by the National Society of Crippled Children and Adults. This number includes more than 50 new resident camps and a substantial increase in the number of day camp programs. The listing was prepared under joint sponsorship of the American Academy of Pediatrics and the American Camping Association. Copies may be ordered from the Society (2023 West Ogden Avenue, Chicago 12) for 50 cents each.

* * * *

"Freezing Prepared Foods" is the title of a new booklet (Circular 731) from the University of Missouri Extension Service. In it, nutrition specialists discuss various packaging materials to use in home freezing, the freezing of main dishes, meats and stews, vegetables and salads, and pastries. Copies may be requested by writing: Mailing Room, Mumford Hall, Columbia, Missouri.

Removing Summer Stains. Hot weather and the fresh fruit and berry seasons bring special problems in cleaning uniforms and table linen, but Eileen Gibson, clothing specialist with the University of Missouri Extension Service, urges that you use caution when using bleaches. Chlorine bleaches can cause yellowing, particularly of resin-treated fabrics—the ones called "drip dry" or "easy care," and which are especially popular for summer service personnel uniforms. Unless the hand-tag specifically states that it is safe to use a chlorine bleach, you'd better avoid it. Follow the manufacturer's instruction for care and laundry. An oxygen-type bleach—sodium perborate—is safe for resin-treated fabrics. These bleaches are most effective when used at high temperatures, but high temperatures can also cause yellowing of resin-treated fabrics. Lower the washing temperature and use the bleach oftener for desirable results.

If a garment turns yellow when it is bleached with chlorine, put it into a dilute solution of sodium hydrosulfite (sometimes referred to as sodium hyposulfite). It may be bought at drug stores selling photographic supplies. Use 1 Tbsp. to 1 gal. lukewarm water. Soak the garment in this solution for 10 min. with occasional stirring. Thorough rinsing in water is most important. Usually the white color will be restored.

News of State Associations

Alabama Dietetic Association. On April 28, Alabama dietitians gathered at Huntingdon College for their spring meeting. Evelyn Carpenter, A.D.A. Treasurer and the national Association's representative at this meeting, spoke on "Communications in Dietary Administration." Other features of the program included a report on "Atomedics—The New Concept in Hospital Design" by Rev. Donald McGuire; and a discussion of "Geriatrics Today" by Dr. Jane M. Day.

California Dietetic Association. This Association reports that the workshop held in Asilomar, March 15 to 17, was presented jointly by the Association; the Division of Continuing Education in Medicine and the Health Sciences, University of California Medical Centers, San Francisco; and the University of California Extension, Northern Area. The subject was: "The Dietitian—Her Orbit of Influence." The speakers pointed out that the orbit of the dietitian has many absorbing and challenging ramifications. Participants were reminded of the importance of self-awareness, productive communication, flexible standards, the exchange of ideas, and above all, good public relations.

Georgia Dietetic Association. Questionnaires have been sent to all nursing homes in Georgia to learn whether the Georgia Hospital Diet Manual, which all received, has been helpful. If problems are reported, the state Community Nutrition Section will arrange for a dietitian in the area to meet with the nursing home operator, or written material will be sent.

The Georgia Dietetic Association is working with the Georgia Nutrition Council in an educational program for families receiving "foods for the needy." Part of the instruction will be done via radio and television programs, although most will be done at the welfare distribution points. Since many of the foods to be distributed are unfamiliar to the local people, simple recipes will be developed to help these families in preparing the foods.

In March, the *Atlanta Dietetic Association* heard an address on "Interpersonal Relationships" by Gilbert C. McLemore, Administrator, Egleston Hospital.

Augusta members enjoyed a talk in March on "Recognition," by Sister Joseph Marie, A.D.A. Continuing Education Representative of Region V.

Indiana Dietetic Association. A lively spring convention in Indianapolis was enjoyed by members of the Indiana Dietetic Association on April 18 and 19. The program featured:

"How to Make Nutrition Education Interesting" — Dena Cederquist, Ph.D., Chairman, Department of Foods and Nutrition, Michigan State University, East Lansing

"The Changing Scene"—Mary Johnson, Dietitian, Stamford (Conn.) Hospital

"Some Effective Teaching Procedures" —Dr. John W. Best, Butler University, Indianapolis

"How to Teach Food Service Personnel" — Grace Shugart, Chairman, Department of Institution Management, Kansas State University, Manhattan

"Why Continue Education of the Graduate Dietitian?"—Mildred M. Reynolds, Ed.D., Chairman, Department of Institutional Management, Purdue University, Lafayette, Indiana

Your Standard Brandsman stands on his head to give you service
There's no better proof than his *Brewing Better Business* (for you!) program. Here, at last, is a scientific, tested formula for brewing the "ideal" cup of coffee, time after time. It starts, of course, with the right blend of Chase & Sanborn. Ask your Standard Brandsman to demonstrate via the "colored dot" story. He'll show you how to brew better business for yourself.
Chase & Sanborn
family of fine coffees
THE ROASTERS OF FANCY MARK COFFEE

More Vitamin C than in Fresh or Frozen Orange Juice!

New INSTANT Lasco® ORANGE BREAKFAST DRINK GRANULES

Each 4-oz. serving contains more than 70 milligrams of Vitamin C.

√ Nothing to add but water
√ High Nutrition—Low Acidity

So easy to prepare! A 2-lb. vacuum-packed tin of the new Lasco Orange Breakfast Drink Granules and 2 gallons of water make *69 four-ounce servings* . . . delicious, nutritious and economical!

And Your Old Favorites DELUXE Lasco® FROTHY GRANULES

—in 15 delicious flavors (Orange, Lemon, Lime, Grape, Pink Lemon, Fruit Punch, Orange Pineapple, etc.). An 8-oz. serving contains 30 milligrams of Vitamin C (and 4000 U.S.P. Units of Vitamin A in some flavors). The 10-oz. jar makes 7 gallons of beverage *for less than 2¢ an 8-oz. glass!*

WRITE for complete details!

af INC.

ALLEN FOODS, INC.
Finer Foods for Hotels and Institutions
4555 GUSTINE • ST. LOUIS 16, MISSOURI

Visit our Exhibit at A.D.A. Convention

WE'LL LOOK FORWARD TO SEEING YOU

CATHOLIC HOSPITAL SHOW

BOOTH 536

• HOLIDAY ITEMS
• PRINTED NAPKINS
• TRAY COVERS

A complete line of quality paper TRAY APPOINTMENTS.

STOCK or CUSTOM DESIGNED PATTERNS.

Aatell & Jones, Inc.

3360 FRANKFORD AVENUE
PHILADELPHIA 34
PENNA.

EATING IS FUN— for Older People, Too

Designed to Aid Proprietors of Small Nursing Homes and Residences. Also Adaptable to Home Kitchens

This attractive booklet is a guide to better food and food service in the small institution. Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving. This is a project of the Diet Therapy Section of The American Dietetic Association.

Single copy 50¢

Five copies ----------$2.00
Ten copies ---------- 3.75

Order from:

THE AMERICAN DIETETIC ASSOCIATION
620 North Michigan Avenue
Chicago 11, Illinois

"When to Teach Nurses"—Carmel Hackman, Instructor in Nutrition, Methodist Hospital, Indianapolis

"The Professional Woman in the American Society" — Dr. Henry Hawkins, Professor of Psychology, DePauw University, Greencastle, Indiana

"The Control of Eating Through Management of the Patient"—Dr. Charles B. Ferster, Department of Psychiatry, Indiana University Medical Center, Indianapolis

"Management Techniques"—Irvin Lee Heckman, Jr., Ph.D., Associate Professor of Management, University of Illinois, Urbana

"Women around the World"—Dr. I. Lynd Esch, President, Indiana Central College, Danville

A special program for food service supervisors was also planned in conjunction with this spring convention.

Members of the *Northeastern Indiana Dietetic Association* (Ft. Wayne) have been invited to serve as instructors in classes in mass feeding to be sponsored by the local Red Cross chapter. In anticipation of this work, they invited Dorothy Bovee, A.D.A. consultant in disaster feeding and civil defense planning, to conduct a workshop to prepare them for their roles as instructors. This meeting was held on April 12.

Iowa Dietetic Association. Members of the Iowa Dietetic Association met in Des Moines on April 6. Speeches on the program included:

"The Dietitian's Responsibility in Kitchen Design"—Arlene Wilson, Assistant Director, Dietary Department, Indiana University Medical Center, Indianapolis

"Report on the White House Conference on Aging"—Margaret A. Ohlson, Ph.D., Director, Department of Nutrition, State University of Iowa Hospitals, Iowa City

Discussion groups considered the problems of "Current Trends in Diet Therapy" and "Decisions Involved in Planning a Kitchen for Large Quantity Preparation and Service of Food."

Kansas Dietetic Association. The Missouri-Kansas Dietetic Associations' workshop was held May 25 and 26 in Columbia, Missouri. The program was planned to provide information and guidance in individual problem-solving. Included in the roster of speakers were: Dr. Walter Stanley Hartroft, Chairman, Department of Pathology, Washington University, St. Louis, who talked on "How Do You Evaluate Current Articles on Fats in Foods in Relation to Cholesterol and Heart Disease?"; and F. Wendell Huntington, Vice-President, Ralston-Purina, St. Louis, who spoke on personnel problem-solving. Also included on the program was a review of recent books.

SWARTZBAUGH
UNITRAY
CART

A complete **ONE TRAY**
food service system

Keeps
Hot Foods Hot—
Cold Foods Cold
... and all on One Tray!

ALL of the items necessary for a complete food service system — from start to finish — are available from Swartzbaugh. Mechanically Refrigerated cold food loading tables specially designed for handling plated salads, desserts, butter, etc., and hot food loaders with built-in flexibility combine with tray set-up unit, dish lifters and conveyor line to provide you with a fast, efficient food serving system — all from one source.

Now, for the first time, you can have *all* of the advantages offered by "All on the same tray" service. No longer do you have to worry about the proper combining of hot foods onto the cold tray at a point distant from the kitchen. SWARTZBAUGH'S "All on the same tray" Unitray cart makes complete kitchen control of the centralized food service system possible.

The Swartzbaugh UNITRAY cart is designed to be coordinated with other Swartzbaugh food service units, if desired, to give you a centralized food service system — with complete kitchen control.

Swartzbaugh specialists are at your service to help plan, install and implement your food service system. Write today for more information.

UNITED SERVICE EQUIPMENT CO., Inc.

SWARTZBAUGH DIVISION
MURFREESBORO, TENN.

JARVIS & JARVIS DIVISION
PALMER, MASS.

SALES HEADQUARTERS: PALMER, MASS.

"Patients prefer
PAPER
food service for
complete sanitation
and prevention of
cross infection"

John J. Kelly,
Administrator
Riverdell Hospital
Oradell, N. J.

Riverdell is another new, modern hospital whose food service facilities are designed for all-paper service to reduce both capital investment and operating costs.

According to Administrator Kelly, the preference for paper among patients is almost unanimous—particularly because of its hygienic advantages.

Mr. Kelly states that paper cups and containers make possible simple, fast serving procedures through extensive preportioning, ease of handling and disposability. He appreciates the over-all quietness, the savings in storage space, and the absence of dishwashing problems. Mr. Kelly is also pleased that paper reduces dietary department labor costs.

SEND 25¢ FOR FACTFUL BOOK

Sixty pages of helpful information on all phases of food service. Complete with cost studies and case histories of money-saving ideas from hundreds of restaurants and institutions. Send 25¢ in coin to:

PAPER CUP AND CONTAINER INSTITUTE, INC.
250 Park Avenue, New York 17, N. Y.

PAPER
the personal
food service

Minnesota Dietetic Association. Minnesota dietitians are raising a fund for a memorial to Winifred Howard Erickson, for many years Director of Dietetics, Ancker Hospital, Minneapolis, and A.D.A. President in 1955-56. It is hoped that sufficient money will be received to provide for a memorial to Mrs. Erickson in the new Ancker Hospital—perhaps a memorial room, a nutrition and dietetics library shelf, a dietitian's office, or a classroom. Contributions may be sent to Romona Sederberg, St. Mary's Hospital, Duluth.

The spring meeting of the Minnesota Dietetic Association was held in St. Paul, May 10 and 11. The program featured:

"Those Special Touches: Planning for Special Occasions in the Hospital"—Mabel Mathias, Director, Dietary Department, Northwestern Hospital, and Ann Crowley, Director, Dietary Department, Abbott Hospital, both of Minneapolis

"Public Relations Are Human Relations"—Dr. Willard L. Thompson, Assistant to the President, University of Minnesota, St. Paul

"Evaluating the Dietary Workers"—representative of the Minnesota Restaurant Association

"Scheduling and Worker Productivity"—representative of Minneapolis-Honeywell Company

"Food Fats and Governmental Legislation"—A. Harris Kenyon, District Director, Food and Drug Administration, Minnesota Division

"Safe Meals—or Bacteria-on-Wheels?"—Lee Stauffer, Assistant Professor and Senior Sanitarian, University of Minnesota School of Public Health.

New Jersey Dietetic Association. On May 3 and 4, members of the New Jersey Dietetic Association met in Newark for their annual convention. The program included:

"Feeding the Gastrectomized Patient"—Dr. James Wolstenholme, VA Hospital, East Orange

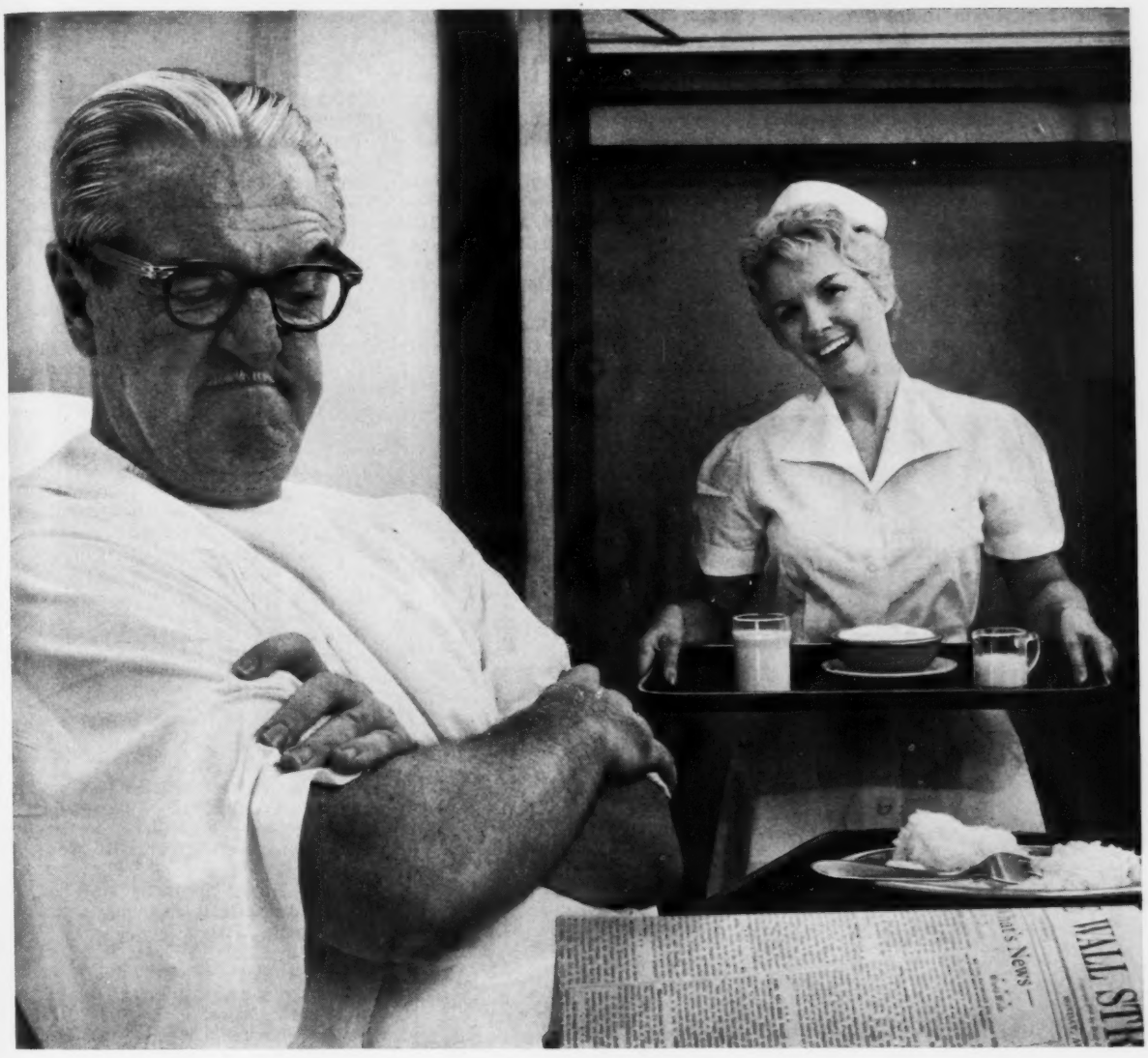
"Basic Principles of Supervision" and "Development and Training of Personnel"—Institute of Management, Rutgers University, New Brunswick

"Challenge of Mediocrity—Do We Dare Face Our Food Service Problems with Courage to Seek New and Better Answers?"—Jack A. Ghene, Editor, *Volume Feeding Management*, New York City

"Work Simplification and Its Application"—Arthur C. Avery, U. S. Navy Research and Supply Development Facility, Bayonne

The *Northern New Jersey Dietetic Association* met on April 17 in East Orange to hear S. William Kalb, M.D., F.A.C.G., speak on "Food Facts and Fallacies." Each person who attended received a copy of the A.D.A. booklet, *Food Facts Talk Back.*

The gourmet touch—
In good taste always—Syracuse China
GOURMET, one of the newest patterns in Hospitality by Syracuse



If he refuses "tasteless baby food"...

serve him double-flavored Malt-o-Meal

Here's a man used to getting exactly what he wants. Bland diet? Let's face it . . . he hates it. So give him something bland but full of flavor—*double-flavored* Malt-o-Meal. Sun-ripened wheat and toasted malt. Never gummy—has good "mouth feel." It's just what the doctor ordered for bland diets, geriatric patients, and baby. And it's just good eating.

REMEMBER THIS ABOUT MALT-O-MEAL

- No sodium added. Natural content 3 mg. per 100 gms.
- Low-Fiber Content (½%) truly non-irritating, chemically and mechanically.
- Easily digestible.
- Fortified with B complex vitamins and iron.
- Free of non-nutritional additives.
- Added wheat gluten gives higher protein content.

When ordering cereal . . . order Malt-o-Meal enriched wheat cereal

(MEETS FEDERAL SPECIFICATION FOR ENRICHED WHEAT CEREAL)

New York State Dietetic Association. To tie in with the annual meeting of the New York State Dietetic Association, April 19 to 21, Governor Nelson D. Rockefeller proclaimed the week of April 17 to 23 as Dietitian's Week in the state.

A special feature of the first day of the meeting, held in New York City, was a program of field trips to American Airlines kitchens at International Airport, Four Seasons Restaurant, Union Carbide employee cafeteria, Beekman-Downtown Hospital, Seaman's Church Institute, *McCall's Magazine* test kitchens, St. Luke's Hospital, and General Foods kitchen in White Plains. In the evening, the Mary Swartz Rose Memorial Lecture was presented by the Greater New York Dietetic Association.

The second and third day's sessions included the following papers:

"New Dimensions of Education in Dietetics"—Adelia M. Beeuwkes, A.D.A. President-Elect

"Dietetics, Diet, and Dieters—A Cultural Analysis of Food Habits"—Manet Fowler, Ph.D., Research Director, Public Health Research and Development and Evaluation Group, New York State Department of Health

"Dietary Measures in Rehabilitation"—Menard Gertler, M.D., Director of Research, Institute of Physical Medicine and Rehabilitation, N. Y. University Medical Center

"Effects of Medications on Nutrition"—Seymour Halpern, M.D., New York Medical College

"What to Expect in Equipment as Influenced by Food Trends"—O. Ernest Bangs, School of Hotel Administration, Cornell University

"Curriculum Changes in Nursing Education"—Ruth S. Lyon, Assistant in Nursing Education, New York State Board of Examiners

Walker China
VITRIFIED
ONE OF THE FINEST . . .
for over 35 years!
CARNIVAL
on the
REVERE SHAPE
SPACE SAVER
You'll be amazed how compactly the Revere shape fits on tray or table. In fact, no shape takes less tray space. And this smart Carnival pattern will delight you. Your choice of several two-color combinations.
Remember, nothing holds heat or cold . . . cleans so easily . . . is so durable and resistant to wear as AMERICAN Vitrified China! Ask your Walker Dealer or send for his name and address.
THE
WALKER
CHINA COMPANY
BEDFORD, OHIO

North Carolina Dietetic Association. The spring meeting of the North Carolina Dietetic Association was held May 12 in Durham. On the program were: Dr. Ralph Patrick, Anthropologist, University of North Carolina, Chapel Hill, speaking on "Cultural Food Patterns"; Dr. Nathan Womack, Chief of Surgery, University of North Carolina, who discussed "Ulcerative Colitis"; and Dr. R. W. Postlethwait, Chief of Surgery, VA Hospital, Durham, whose subject was "Complications after Gastric Resection for Peptic Ulcer."

Ohio Dietetic Association. A two-day meeting in Dayton was held May 25 and 26 by the Ohio Dietetic Association in celebration of its fortieth anniversary. The program was as follows:

"Administrative Role of the Dietitian"—Samuel White

"Body Composition Studies"—Charlotte M. Young, Ph.D.

"The $ Problem—A Challenge to Dietary Managers"—Warren L. Ganong

"Hospital Dietary Departments—The Dietitian vs. Outside Management"—Benjamin Wright

"The Dietary Role in Heart Disease"—Dr. Douglas Talbot

"Radioactivity and the Food Supply"—Richard Hagee

"Get the Most for Your Produce Dollar"—Mickey Houstin

"Feeding the Astronaut"—Beatrice Finkelstein

"Research and Development of Foods of the Future"—Marguerite Howley

"Trends in Food Service Equipment"—Louise Froelich

"Methods Research—Techniques and Results"—Benjamin Dorsett

"Disaster Plans for Hospitals, Institutions, and Communities"—a panel discussion

"Nutritional Needs and Control of the Diabetic During Pregnancy"—Dr. Thomas Sharkey

"Postoperative Nutrition"—Dr. Frederick Grey

"Food for Thought — Ideas and Words"—John B. Steinbrugge

"It Pays to Say It Simply"—Professor George J. Kienzle

Oklahoma Dietetic Association. Members of the Oklahoma Dietetic and Restaurant Associations met in a joint spring meeting, April 18, 19, and 20 in Oklahoma City. A highlight of the meeting was a "Gourmet Tour," attended by members of both organiza-

SOUTHERN®
EMORY U. = **QUALITY SATISFACTION**

Flexible in design, one central kitchen supplies six cafeteria counter lines, student and faculty dining rooms plus a tea room and a basement snack bar.

A complete and separate building, devoted entirely to food service, is only one outstanding feature of this exclusive "Custom-bilt by Southern" installation. Three floors house the facilities to feed 3500 students, faculty and guests daily.

EMORY UNIVERSITY "CHOW PALACE"
ATLANTA, GEORGIA
Director of Food Services: Mrs. Helen Jenkins
Architect: Robert & Co.
"Custom-Bilt by Southern" Distributor: Whitlock-Dobbs, Inc., Atlanta
Southern Equipment District Engineer: Charles B. Blood

Every Southern installation is the result of complete cooperation with Architect, Consultant, Owner and "Custom-bilt by Southern" Distributor. All contribute to the effectiveness of an efficient, smooth running food service installation.

Contact the Southern Distributor nearest you—take advantage of his experience and skill.

SOUTHERN®
EQUIPMENT COMPANY
4554 GUSTINE AVE. • ST. LOUIS 16, MO.
EASTERN DIVISION OFFICE: 125 Broad St., Elizabeth, N. J.

tions. Features of the program were:

"Personnel Management: Basic Responsibility of the Manager"—Dr. I. L. Heckman, Jr., University of Illinois

"Labor Relations"—Dr. A. Q. Sartain, Southern Methodist University

"New Trends in Nutrition"—Margaret A. Eppright, Ph.D., University of Texas

"Control of Operating Costs"—Raymond C. Matson, Past-President of the National Restaurant Association

"A Challenge to the Oklahoma Dietetic Association"—a panel discussion

"Motivating People"—Dr. Vernon V. Sisney, VA Hospital, Oklahoma City

"Education and Continuing Education"—F. Eugenia Whitehead, D.Sc., Iowa State University

"Food Additives"—Sam D. Fine, Food and Drug Administration

"The Use of Spices"—a demonstration by Chef Alfred Goldsmid, American Spice Trade Association

"Frozen Foods"—a demonstration by N. R. McGowen, Birdseye Division, General Foods

The project for 1960-61 of the Oklahoma Food Administration section is to arrange exchange visits for food service supervisors and cooks in small hospitals of comparable size and within reasonable driving distance of each other. A.D.A. members will direct the visits so as to be able to give constructive suggestions and answer questions.

The *Tulsa Dietetic Association* on March 16 sponsored an Institute on Meal Planning and Purchasing for Nursing Home Operators in three adjoining counties. Leaflets and bulletins were made available to those attending, and the Tulsa dietitians contributed their favorite supper menus and recipes. Special guest speaker was Dr. Richard Hahn, Hospital Division, Oklahoma Department of Health, who discussed menu planning.

Oregon Dietetic Association. The program for the spring meeting of the Oregon Dietetic Association on April 29 in Corvallis, included:

"Research on Dental Health at Oregon State University" — Dr. Gertrude Bank, Associate Professor of Nutrition Research, Oregon State University

"Report on White House Conference on Aging" — Elizabeth Baldwin, Nutritionist, Oregon Public Welfare Commission

"The Law as It Affects the Dietitian in an Institution"—Richard Mengler, Associate Professor of Business Administration, Oregon State University

"Management of Dormitories at State Universities in Oregon"—a panel discussion

"Foreign Food Fantasies" — Beth Bailey McLean, Associate Professor of Foods and Nutrition, Oregon State University.

Pennsylvania Dietetic Association. The twenty-eighth annual meeting of the Pennsylvania Dietetic Association was held at the Pennsylvania State University, April 7 and 8. Highlights of the program included:

"The Years of Man—Implications of the White House Conference on Aging"—Dr. Joseph H. Britton, Professor of Child Development and Family Relationships, Pennsylvania State University

"Nutrition and Disease: Current Concepts"—Ruth Pike, Ph.D., Associate Professor of Foods and Nutrition, Pennsylvania State University

"Motivation Is a Tool of Management"—Dr. S. Earl Thompson, Head, Department of Hotel and Institution Administration, Pennsylvania State University

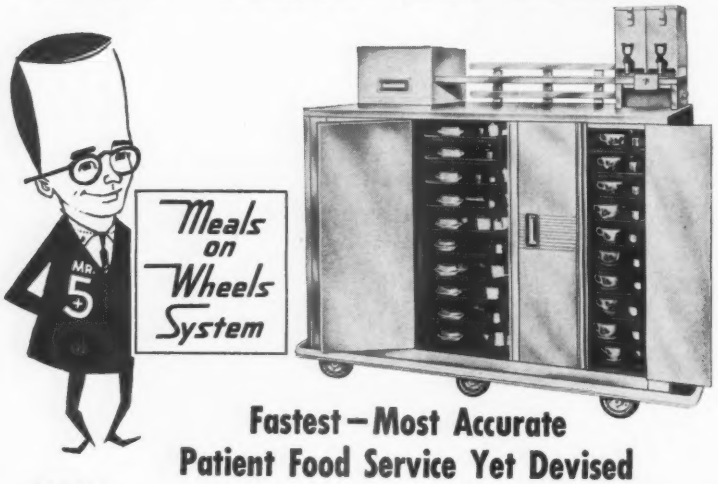
"Creative Management of People"—Harold P. Zelko, Professor of Speech, Pennsylvania State University

"Today's Nutrition for Tomorrow's Nurse"—A. Elizabeth Crozier, University of Rochester, Rochester, New York

"Recipe Development"—Grace Boyd, Supervisor, Experimental Kitchen, Pennsylvania State University

Preceding this meeting, a two-day Joint Conference for Hospital Administrators and Dietitians was co-

NOW—1961 brings the NEW ELECTRA II with "TRAY-ON-TRAY"



Fastest—Most Accurate Patient Food Service Yet Devised

NOW TRAY-ON-TRAY system makes tray matching easier than ever.

NOW the most important step yet toward elimination of confusion and delay with new TRAY-ON-TRAY system.

NOW dietitians can easily check *complete* patient tray before it leaves kitchen, exactly as it will be delivered to the patient, with hot foods hot and cold foods cold—guaranteed.

Meals-on-Wheels System
5055 East 59th Street Kansas City 30, Mo.

Please send me complete information on the new ELECTRA II and the TRAY-ON-TRAY system.

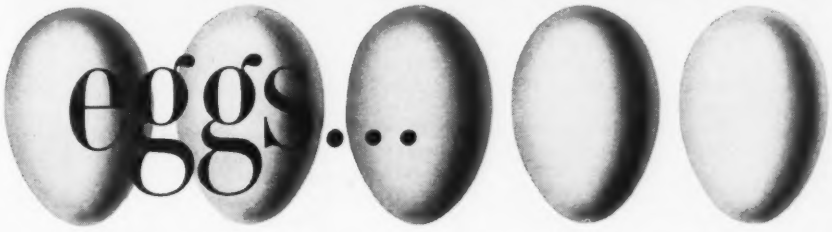
Name_____ Title_____

Institution_____

Street Address_____

City_____ Zone____ State_____

MAIL THIS COUPON TODAY



and the fat recommendation in current dietary thinking

Cholesterogenesis in man is recognized as a highly complex process, only partially affected by the character of the diet. Nonetheless, the opinion is often expressed that the lipid content of the adult American diet might well be reduced from its current level of 40 to 50% of daily calories to about 30%.

The ultimate goal of this recommendation is the possible reduction of serum cholesterol levels.

Because eggs constitute an important part of protein, vitamin, and mineral nutrition, they are included in virtually every authoritative low fat diet. In a diet supplying 2500 calories, 30% of which are furnished by lipids, the lipids of two eggs comprise only 1/7 of the allowed daily fat intake.

Two Eggs Provide*:

Protein	13 Gm.
Carbohydrate	1 Gm.
Fats (total lipids)	12 Gm.
Fatty acids	
Saturated (total)	4 Gm.
Unsaturated	
Oleic acid	5 Gm.
Linoleic acid	1 Gm.

Vitamins present: A, D, E, K, B_1, B_2, B_6, B_{12}, pantothenic acid, niacin, folic acid, biotin.

Minerals present: Calcium, phosphorus, sodium, potassium, chlorine, sulfur, iron, iodine, manganese, magnesium, zinc, copper.

**U. S. Department of Agriculture Home and Garden Bulletin No. 72, Sept. 1960.*

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

Poultry and Egg National Board
8 South Michigan Avenue, Chicago 3, Ill.

sponsored by the Hospital Association of Pennsylvania and the Pennsylvania Dietetic Association. The theme, "Dietetics in the Future," was carried out in the program, which had as its purposes: (a) to examine the direction of change in hospital food service; (b) to broaden the understanding of the role of the hospital dietitian in the future; (c) to promote effective cooperation between the hospital administrator and the dietitians; and (d) to appreciate and utilize the professional skills of the dietitian to the best interests of the patient and the hospital community.

Utah Dietetic Association. May 13 was the date of the Utah Dietetic Association's meeting in Salt Lake City. Dr. Shelly A. Swift, Chief of Pathology, St. Mark's Hospital, was the featured speaker. His topic was "Newer Methods of Diagnosing Diseases."

The Diet Therapy Section has completed a suggested course outline for medical conferences on normal and modified diets. Copies are being sent to all hospitals in Utah for their use in teaching medical interns.

Washington State Dietetic Association. "Top drawer topics" is the way Washington State dietitians described the program of their spring meeting, April 14 and 15 in Seattle. Presentations drawing this praise included:

"Our Education Diet"—William Phillips, Assistant Dean, Arts and Science, University of Washington

"Are You Hiding Behind Your Desk?"—Harold K. Koenig and Dayton Davidson, General Service Administration, National Archives of Records

"The Part-Time Dietitian"—a panel discussion

"What the Dietetic Association Can Do for You"—discussions by Elsie Bakken and Mary Ishii on the national and state associations, respectively

"Diabetes"—William J. Steenrod, M.D., Mason Clinic, Seattle

"Food Merchandising in the Cafeteria"—Betty Lunstead.

West Virginia Dietetic Association. Alcoholism and magnesium, phenylketonuria, Camp Kno Koma, and the West Virginia University Medical Center were the main topics of speakers at the meeting of the West Virginia Dietetic Association in Morgantown on April 14 and 15.

Dr. Edmund B. Flink, Chairman of Medicine, West Virginia Medical Center, was the speaker on "Magnesium in Relation to Alcoholism," while Dr. William G. Klingberg, Chairman of Pediatrics, discussed "Phenylketonuria."

Also included on the program was a showing of the A.D.A. slide film, "Take a Good Look," and a report on the White House Conference on Aging.

Wisconsin Dietetic Association. The week-end of April 7 and 8 saw Wisconsin dietitians gathering in Milwaukee for their annual spring conference. The program included:

"Diet Therapy and Renal Disease"—Dr. Willard Krehl, Biochemist, Milwaukee County Hospital

"Accounting—An Aid to Management Decision-Making"—Orville Palmer, Dean, College of Business Administration, Marquette University, Milwaukee

"What It Means to Be a Dietitian"—Doris Johnson, Ph.D., President, A.D.A.

"Procurement and Inventory Control"—William O. Vogel, Administrative Assistant, Milwaukee County General Hospital

"Diet Therapy and Modern Concepts of Diabetes"—Dr. Norman Engbring, Milwaukee County Hospital

"Profitable Public Relations"—Elizabeth Kletzch, Personnel Director, Milwaukee County Institutions

Career Guidance in the States

BY FRANCES W. MARGUT
A.D.A. Career Guidance Chairman

Let it not be said that we read only the career guidance activities column

End Mixing!
Save Time!
LSM
LOW SODIUM
milk
with NEW
LOW SODIUM MILK
A Natural, Whole
LIQUID MILK
for restricted sodium diets
Pour LOW SODIUM MILK right from the can to patient's glass. Save time because there's no mixing. And each glass is assured the same natural consistency. LOW SODIUM MILK can be used whenever a sodium restricted diet is indicated.
Low Sodium Milk fortifies the nutritional value of any diet for it contains many of the proteins, vitamins and minerals so essential for good health and growth.
Each quart contains approximately 5% carbohydrates, 3.5% protein, 3.5% butterfat, 675 calories, AND LESS THAN 50MG. SODIUM.
Needs no refrigeration—
Can be shipped anywhere!
LOW SODIUM MILK ALSO AVAILABLE WITH LOW FAT CONTENT
For further information about LOW SODIUM MILK write:
CANNED DAIRY PRODUCTS, INC.
800 Fulton Street, Pittsburgh 33, Pa.
Phone: FAirfax 1-7600

5 2/10 cents per thousand servings

That's how durable and economical Libbey's attractive Columbian tumblers are

An audit of Libbey Heat-Treated Dated Columbian Tumblers in restaurants in 7 major cities showed a glassware cost of 5.2 cents per thousand servings. That's durability . . . and economy!

The easy-to-hold, graceful shape of this beautiful glassware is an asset to any table setting. There is a full range of sizes (5 to 12 ozs.).

You, too, can prove the durability of these tumblers by checking the mark on the bottom. The left number shows the year of manufacture and the right designates the quarter.

For full information on Libbey Heat-Treated Dated Columbian Tumblers, see your nearby Libbey Supply Dealer or write direct to Libbey Glassware, Division of Owens-Illinois, Toledo 1, Ohio.

LIBBEY HEAT-TREATED GLASSWARE
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

in the JOURNAL. *Frankly, we read it from cover to cover and frequently refer back to its excellent articles. I hope you all do the same. If so, you may have noted on page 286 of the March issue, under "Publications of Interest," the announcement of a pamphlet, "Do-It-Yourself Posters Teach Nutrition," which can be obtained free of charge from USDA. We sent for it and found that it contains many excellent, easy, and inexpensive ideas which can be adopted for career guidance posters and exhibits. We recommend that you get a copy.*

Arizona held its annual meeting in the winter, at which time the Career Guidance Committee reported these excellent results. Career information given to:

(a) 15 elementary school groups
(b) 8 senior high groups
(c) 1 adult women's group
(d) 1 adult men's group
(e) 2 career day programs with para-medical groups
(f) 1 radio program over KPHO, Phoenix
(g) The purchase and use of an additional copy of "Take a Good Look."

Considering the great distances and few members in this state, our heartiest congratulations on a job well done—other states with similar conditions please note!

California: The Home Economics Department of the San Diego City Schools planned a Home Economics Career Week—April 17-22, with speakers, field trips, and a workshop sponsored by the Home Economics Department of San Diego State College. Eighty-six home economics teachers, grades 7 to 12, concentrated on home economics careers during the week. In order to see that dietetics was well represented and presented, three copies each of *View from the Mountain* and "Take A Good Look" were borrowed and circulated. The local dietetic association, which has developed a fine speaker group, was much in evidence, assisting in this excellent project.

Colorado. The annual spring career guidance tea of the Colorado Springs Dietetic Association was held this year at Penrose Hospital. The program featured dietetic interns from Colorado State Hospital, who were effective and enthusiastic "sellers" of dietetics as a profession, to teenage visitors.

Connecticut. The complimentary copy of the Credentials Service Bulletin rang a bell in the mind of Natalie Griffith. She writes: "Here is a a wealth of data, in brief form, concerning the extremely high demand for dietitians and nutritionists, their responsibilities and duties, the salary range, vacations, holidays and fringe benefits." She recommends using it when talking to student groups.

Nebraska. Two dietitians from this state association appeared over KOLN-TV, Lincoln, during observation of Home Economics Week. One spoke on hospital dietetics, the other presented the field of nutrition education.

Vermont. This is another state association working under the handicap of few and widely scattered members. They are finding that homemakers unable to carry on full-time jobs still retain their interest in the profession and are an excellent source of speakers for junior and senior high school groups. As wives, and frequently mothers, their words carry great weight with youthful audiences.

CHAIRMAN'S NOTE: *Along with this report of the many fine career guidance activities in the state associations, it is well to remind members that personal contacts are still one of the best and easiest ways to present our profession to potential dietitians. In proof of this, we quote a letter received by Edith Jones, Speaker of the House of Delegates last year. Miss Jones is Chief of the Nutrition Department, The Clinical Center, National Institute of Health, Bethesda, Maryland. The letter speaks for itself:*

"Thank you very much for showing

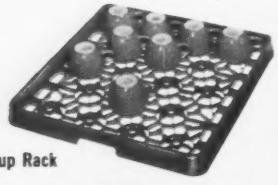
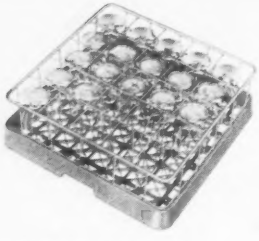

Cup Rack

Plate and tray Rack


Goblet or Tumbler Rack

All-Purpose Rack

GUARANTEED TO OUTLAST ANY OTHER RACK OR YOUR MONEY REFUNDED!

RABURN® RACKS PATENTED
For All Dishwashing Machines!

• **30% Less Cost** Each rack costs less, yet fewer racks are needed.

• **40% Less Space** 40% less space to hold as many cups as wire racks.

• **70% Less Weight** Raburn Racks weigh 70% less than wire racks.

(Figures based on comparison of our all-plastic rack with plastic coated compartment wire cup racks)

FREE OFFER!
Try 12 Racks
(any combination of models) at no expense to you. If not completely satisfied within 30 days, simply return.

FILL OUT COUPON BELOW

RABURN PRODUCTS, INC. Dept. E
350 N. Clark St., Chicago 10
We will try—at no obligation to buy—the following Raburn Racks: ___ Cup Racks, ___ Plate Racks, ___ All Purpose Racks, ___ Goblet or Tumbler Racks.
Name_____
Street_____ City_____
Signed_____ Title_____
Dealer_____ Dealer Salesman_____
or Phone Collect 467-5619 . . . Chicago, Ill.

Best meat buy of the year . . .

TURKEY!

1961 CROP TO HIT ALL-TIME HIGH!

Government forecasts show a 99-million turkey crop for 1961 . . . biggest in history . . . up 20 per cent above last year's crop. This means turkeys of all sizes will be in plentiful supply . . . the economical meat buy of the year for hospital menus everywhere!

ADVANTAGES OF TURKEY IN THE HOSPITAL . . .

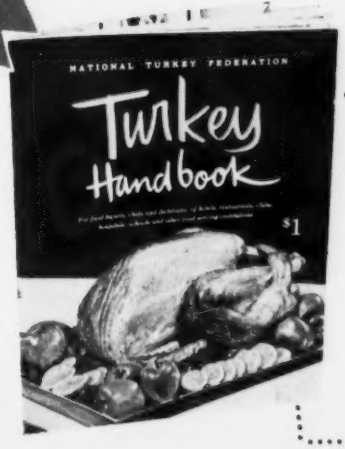
***ECONOMY** – Portion for portion, turkey is one of the most economical of all meats to serve.

***NUTRITION** – Turkey is highest in protein and extremely low in fats and cholesterol. Can be adapted to most hospital diets.

***VARIETY** – Turkey can be served in a wide variety of ways . . . slices, creamed dishes, salads, sandwiches, braised & broiled parts, etc.

***TIME SAVER** – Turkey can be cooked during slack hours, quickly reheated before serving without sacrificing flavor. New boneless turkey rolls save more time.

SPECIAL OFFER!
$1.00 VALUE NOW FOR 50¢



Just off the press! This new, 76-page booklet contains everything the hospital staff should know about turkey. In its pages is a wealth of color photography, nutritional charts and information, over one hundred quantity recipes, well illustrated how-to-do-it stories and countless new ideas for preparing and serving turkey. To get your copy just mail coupon and 50¢. Do it today!

National Turkey Federation
Mount Morris, Illinois

Please send me _____ copies of the new TURKEY HANDBOOK at 50¢ each. (No stamps, please.)
Enclosed is _____ for this purchase.

Name _____

Name of Institution _____

Address _____

City _____ **State** _____

Distribution limited to United States

me around The Clinical Center and taking me to lunch. I received a very good idea of a dietitian's work at the National Institutes of Health and certainly a good sample of the results at lunch. Not only did you give me a wealth of information (I wrote a nine-page report), but you won me over completely to dietetics as a profession. I was especially impressed with the opportunity to work both socially with the patients and scientifically with the doctors. Before I saw NIH, I was uncertain whether I wanted to go into dietetics or research. It was certainly inspiring to see this opportunity to combine the two."

Public Relations in the States

By HELEN G. INGERSON
A.D.A. Public Relations Chairman

Louisiana. Members of The Shreveport Dietetic Association have made weekly radio broadcasts since August 1960 over radio station KWKH, which serves the entire Arkansas-Louisiana-Texas area with an estimated listening audience of 226,000 families. They give 5-min. talks on various food and nutrition subjects on, "Open House," an informal morning program directed mainly to women.

The Louisiana Dietetic Association last year participated in an outstanding health exhibit for laymen. The 1960 Medical Progress Exhibit, portraying the world of medicine at work, was part of the Louisiana State Fair in Shreveport, October 21-30. The Dietetic Association provided and manned three booths: "Nutrition Nonsense," "You Can Reduce," and an information booth on the Association. In the latter booth, the state seal and career and nutrition posters were displayed. Thousands of copies of pick-up material were distributed, including 11,200 "Facts and Fallacies," 2,000 "Rules for Good Eating," 970 "Step up to a Rewarding Career . . . Dietetics," and fact sheets and other career and nutrition leaflets. Over 284,000 visited the medical progress exhibit and provided the dietitians with many opportunities to discuss many food and nutrition subjects, such as eating habits of children, food fallacies, and weight reduction. The members feel that through this project, they made strides in public relations, career guidance, and community nutrition and contributed to the welfare of the community and the state.

The Louisiana Dietetic Association executive board finds the monthly newsletter, "The Dietetic Reflector," which is sent by the chairman of public relations to local public relations chairmen and presidents, and members of the Executive Board, an excellent means of coordination and communication. Since the March issue was written for the individual dietitian to encourage her to take the responsibility in creating and maintaining a desirable public image of the dietitian, it was sent to all members in the state.

A letter to the editor of the Shreveport *Journal*, by a homemaker (actually a public relations chairman) was published on March 18 in its entirety. She commended the editor on a recent editorial, "Take Fun out of Eating," and pointed out some facts about some current food fads. She also recommended the newspaper column written by Dr. Fredrick J. Stare, "About Nutrition," as a reliable source of nutrition information.

New Mexico Dietetic Association comes forward with an excellent idea —a questionnaire sent to the entire membership, designed to help board officers, section and committee chairmen. It asks areas of member's interest for project work, willingness to participate in programs, community and professional affiliations of members through which career guidance work can be accomplished, how the state association can be helpful to the individual, and how meetings can be made more interesting and meaningful.

Who makes the finest soup for quantity food service?

Campbell does...and here's why:

We make soup the way you would if you had all the time and help you wanted. In our spotless kitchens some of the hardest-to-please chefs in the food business work with ingredients that are screened and rescreened for perfection. Then, after hours of preparation and careful simmering, Campbell's Soup has a superb home-style taste only a soup specialist can create.

Everybody—patients and staff alike—will eat good home-style soup. So start serving Campbell's Soups—prepared as directed on the label, or personalized by the addition of simple garnishes or by mixing soup with unusual ingredients. There are twenty delicious Campbell's Soups you can serve for maximum patient satisfaction with minimum preparation and cost—just open, add water or milk, and heat. That's it!

Free! For your free copy of: 1. "Nutritive Composition of Campbell Soup Company Products," 2. Recipes for quantity food service, contact your Campbell representative, or write us: Campbell Soup Company, Institutional Division, Camden 1, N. J.

THIS FOOD STAYS FRESH LONGER

IN A VICTORY V-LINE

people of distinction specify, sell and use this distinctive line

The controlled humidity ever-present in V-line® refrigerators combats drying-out of costly foods and cuts down wasteful shrinkage, which can actually mean "money in the bank" for you.

Experience has proven that V-line® refrigerators cost less to operate and have greater uniformity of temperature throughout. This is why V-line® is the first choice of seasoned buyers.

Sold only through exclusive franchise distributors. Factory representatives in all principal cities.

Write today for literature.

VICTORY
METAL MANUFACTURING CORPORATION
PLYMOUTH MEETING, PA.

Association Activities

A.D.A. Representatives. E. Marion Mike, The Presbyterian Hospital, New York City, served as our official representative at the 1961 Annual Meeting and Workshop of the *U. S. Committee for UNICEF*, May 4 and 5, in New York City.

Janet M. Bryan, Cincinnati Area Chapter, The American National Red Cross, represented A.D.A. at the *American National Red Cross Convention* in Cincinnati, May 7 to 10.

Dorothy J. Bates, A.D.A. Headquarters office, attended a Recruitment Luncheon on April 4 at the *Michael Reese Hospital and Medical Center*, Chicago, sponsored by the School of Nursing. Because of the changing patterns in nursing education, it was felt such a program would help clarify the selection policies, the course content, and professional opportunities in the field of nursing. A panel discussed basic nursing education, after which tours of the Medical Center were made.

Clara Zempel, A.D.A. Headquarters office, was a guest at the 25th Anniversary Banquet of the *Restaurant Women's Club of Chicago* held April 12. Guests from many other organizations closely allied to the restaurant field also attended. Veronica Morrissey, Manager, Women's City Club of Detroit, was the feature speaker.

Lorraine Jarvis, The University of Michigan Medical Center, will represent the Association at the 14th *Annual Conference on Aging* at The University of Michigan, Ann Arbor, June 19 to 21. This Conference will be devoted to "A Study of the Political Aspects of Aging." Questions relating to health and rehabilitation will be discussed in the seminar on "Areas of Social Need."

Civil Defense. Frances M. Janda, Santa Rosa (Calif.) Memorial Hospital, as our representative, reports on the Region 7 Women's Civil Defense Conference, held in Santa Rosa, March 19 to 21. Eighty women from five western states attended.

The theme of the meeting was "Integration" and was presented by Evar P. Peterson, Regional Director Office of Civil and Defense Mobilization. The major goal for any Region is civilian survival. To achieve this, we need an integrated Civil Defense Mobilization throughout and among all levels of government and industry. A specific national plan should include a dynamic shelter building program and a program of conservation and management of resources, including consumer rationing and other allocations systems. Every man, woman, and child should be educated for disaster.

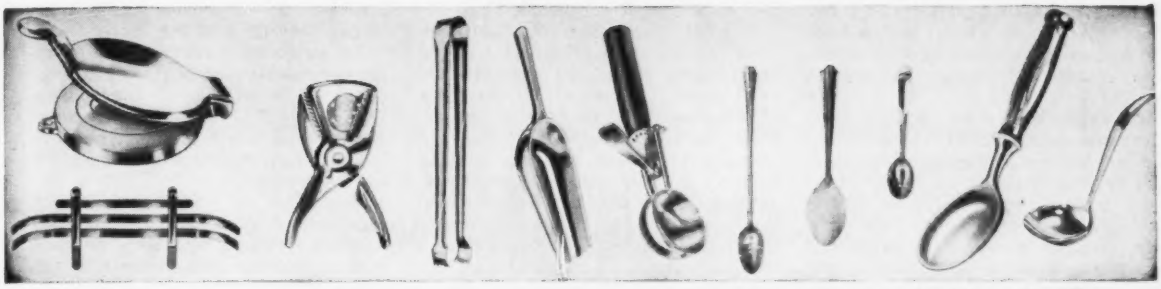
Two caravans of cars toured shelters in the area. One featured an apartment house which included an indoor, windowless shelter in a closet, with emergency rations, flashlight, canned heat, transistor radio, and other useful small items stored on the shelves. The second was a do-it-yourself backyard shelter costing about $300. The third was an underground shelter maintained as a community service for demonstration purposes. The latter contained double bunk beds, bottles of distilled water for drinking, and some food storage space.

Friendship Fete. Evelyn Carpenter, Philadelphia General Hospital, as our representative, reports on the 23rd Friendship Fete held in Philadelphia on April 15. A menu of foods from around the world was served at the luncheon. For distinguished achievements in the field of home economics and nutrition, the Fame Award was presented to Grace K. Nadig, Temple University, an A.D.A. member. Dr. Ruth M. Leverton, USDA, Washington, D. C., as guest speaker discussed "Food in Today's World."

National Health Forum. In addition to previous highlights concerning the National Health Council held in New York City in March, we have further news concerning the meeting from two more representatives, Jane Andrews, The Presbyterian Hospital, New York City, and Virginia S.

Model TSS67
Top-Mounted Reach-In
*Inherent Quality
. . . has made HERRICK
The Aristocrat of Refrigerators
INSIDE . . .
Precision-Welded Steel Frame . . . strongest in the industry.
Undercoating on Inside of Cabinet Shell . . . an effective vapor seal.
AND OUTSIDE
20-Gauge Type 18-8 Stainless Steel . . . won't chip, crack or peel.
Extra-Heavy-Duty Hardware . . . withstands constant door slamming.
HERRICK
STAINLESS STEEL REFRIGERATORS
the line with the
HIGH I.Q.*
for lasting satisfaction and trouble-free service . . . specify HERRICK
Inherent Quality has been a tradition at HERRICK since way back in 1891. "Use the best to build the best" has established HERRICK's reputation for the finest commercial refrigeration. Superior design and expert craftsmanship contribute to HERRICK's rugged durability and top performance. When you buy HERRICK, you can be certain of lasting satisfaction, at a cost-per-year that's surprisingly low. Investigate HERRICK today!
Herrick also makes a complete line of Reach-In Freezers and Walk-In Coolers
SEE OUR CATALOG IN SWEET'S
HERRICK REFRIGERATOR COMPANY, Waterloo, Iowa
WRITE DEPT. DJ FOR THE NAME OF YOUR NEAREST HERRICK SUPPLIER

BLOOMFIELD HAS THE

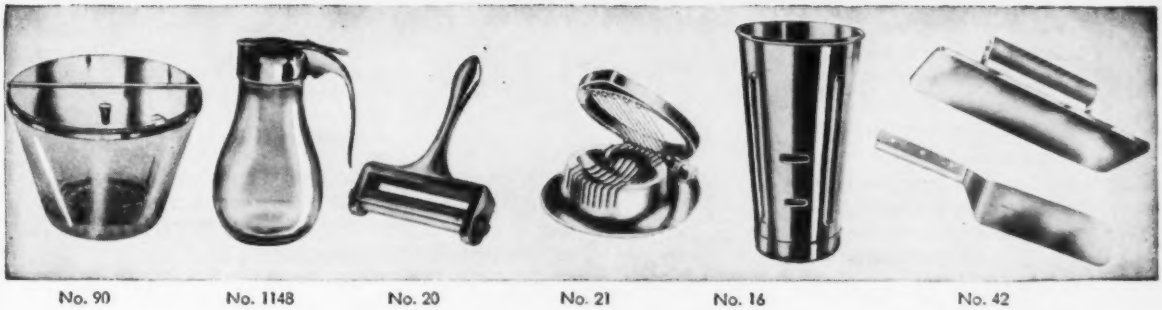


No. 40
No. 500 No. 93 No. 518 No. 512 No. 402 906 907 905 No. 185 No. 963

BEST OF EVERYTHING IN

No. 510 No. 531 No. 520 No.1603
No. 529 No. 48 No. 850 No. 1400 No. 30

FOUNTAIN EQUIPMENT

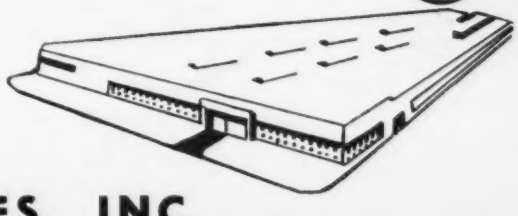


No. 90 No. 1148 No. 20 No. 21 No. 16 No. 42
No 41

Bloomfield products are made of Enduro Stainless Steel—perfectly finished for lasting beauty and utility. They are approved by the National Sanitation Foundation and represent the very finest in skilled craftsmanship.

**THE U. S. LABEL
PROTECTS YOUR TABLE**

**Enduro Stainless Steel
Bloomfield Products NSF Approved**



BLOOMFIELD INDUSTRIES, INC.
4546 W. 47th Street • Chicago 32, Illinois

Blatchford, Norwalk, Connecticut.

Dr. James H. Sterner, incoming president of the National Health Council, presented the inaugural address. As the first president of the NHC from the industrial health field, he explained the importance of industrial health in relation to general health.

Dr. James E. Perkins, retiring President, compared the NHC with the United Nations. Program discussions and reports followed.

Of interest was the report on the health careers project. In 1954, only two member groups had recruiting programs, while in 1960, there were thirty. The "Health Careers" guide book is widely used by guidance counselors. It was emphasized there are "shortages in *all* health careers and that National Health Council activities should be strengthened."

General David Sarnoff, Chairman, Radio Corporation of America, spoke on "Looking Ahead in Communication and Health," emphasizing the place of electronics in medical education. There is now a very rapid pace in scientific discovery and a mounting flow of information and techniques, yet there is less time to read and learn. We must learn how to use and how to live with these new developments.

Some ways in which electronics can be used in the future:

FM multiplexity—a private radio network for medical education can decrease time between research discoveries and doctors' use of these discoveries. TV—especially color TV—can be used for training doctors especially surgeons. Tape versions of refresher courses may be played through your own TV sets at your convenience. World-wide TV will allow members all over the world to see a meeting. Instant translation techniques for TV will be found.

Computers can store much knowledge, keep it up to date, and interpret it quickly. There will be a national medical clearing house for all the latest medical information. Rapid access to patients' medical records could be available through electronics. There could be a centralized history file instead of having histories scattered geographically in various doctors' offices, clinics, and so on.

James Hundley, M.D., U. S. Public Health Service, discussed the health of the nation. Today in our country further plans are under way for conducting a strong health program. We need teaching facilities for all health careers and better facilities and information for communities—especially for "the aging." The roles of government agencies have been defined but only part of the responsibility lies with the government.

An afternoon session was devoted to the subject of "Food-Fads and Quackery." The general consensus was that more nutrition and health should be included in the curriculum of primary and secondary schools.

The goals of health education as seen by public health were described by Leona Baumgartner, M.D., Commissioner, New York City Health Department. Albert W. Dent, President, Dillard University, New Orleans, spoke from the viewpoint of education. Arthur Godfrey, noted radio and television personality, discussed "Communicating Health to the American Public."

The 1962 topic of the National Health Forum will be "Accident Prevention and Emergency Care."

Local Health Departments. Virginia Blatchford attended the National Health Councils' Annual Meeting of the *National Advisory Committee on Local Health Departments.* "The Community Study for Community Health" was the topic of the meeting.

She reports that Vlado A. Getting, M.D., School of Public Health, University of Michigan, suggested a self-study can be done by any community as long as it has the will and energy to do so. A self-study means involvement not only of the town leaders and the executives of voluntary health agencies but the public as well. There should be expert consultation and guidance and careful gathering of facts and analysis of the needs of the community. A tool is the American Public Health Association's *Guide to*

all eyes are
on the Big "I"
Insinger
DISHWASHING
MACHINES
BIG "I" EXCLUSIVE!
14 GAUGE, DEEP DRAWN COVE
CORNER 1-PIECE TANK
• Can't leak — no seams!
• Heavy gauge for strength!
• Easy to clean cove corners mean thorough draining and no bacteria corners!
In addition to these features, Insinger gives you an all-welded hood with cove and radius corners and die-formed doors with rigid strength design. All parts are easily removable for simple cleaning and maintenance. Non-ferrous nickel alloy castings resist the corrosive effects of strong detergents and repel foreign rust deposits. Insinger pumps are designed for rugged service. This is why, today, all eyes are on the Big "I"—Insinger.
Write for free literature and prices.
COMMODORE 15
Single tank door type.
Service — 150 to 250 persons per meal.
INSINGER
MACHINE COMPANY
6245 State Rd., Phila. 35, Pa.

History of The American Dietetic Association

1917-1959

Mary I. Barber, Editor

This is the first official history of the ADA from its inception in 1917 through 1959. More than being merely a record of the Association, its origin, structure, aims and accomplishments, this new book includes the many personalities that represent its leadership and explores the role of the dietitian from ancient times to the Space Age.

Chapter 1 considers the term "dietitian" historically, and presents a definition which describes the dietitian's responsibilities today. Chapter 2 outlines the history of dietetics from the ancient Ebers papyrus to the present, highlighting the achievements of great figures in the history of nutrition.

Chapter 3 gives an interesting account of the founding of the ADA. Chapters 4 through 7 record by decades the spectacular advances both of the ADA and of the science in general. Chapters 8 through 14 describe the structure of the Association, and the work of the various Committees and Sections devoted to education, community nutrition, diet therapy, etc.

Chapters 15 through 19 cover the history of dietitians in military and government service, the United States Children's Bureau and the role of the Journal of the ADA and the Association's Public Relations Department. Chapter 20 relates the challenging aspects of dietetics in the Space Age.

328 Pages • 50 Illustrations

NEW, 1959 • $6.00

J. B. LIPPINCOTT COMPANY, East Washington Square, Philadelphia 5, Pa.
In Canada: 4865 Western Avenue, Montreal 6, P.Q.

Please enter my order and send me:

☐ **HISTORY OF THE AMERICAN DIETETIC ASSOCIATION $6.00**

Name..... ☐ Charge

Address..... ☐ Payment Enclosed

City..... Zone..... State..... ☐ Convenient Monthly Payment

JADA

a Community Health Study, now being field tested. The basic core of the study is always the local health department, which may serve an entire metropolitan area, may be regional, and may even cross state lines. No community can expect to overhaul its total health services in a short period. It should indicate not only a priority list, but a time schedule integrated with community development in the next one to two decades.

Peter Rossi, Ph.D., National Opinion Research Center, Chicago, spoke on "What Makes Communities Tick." He described some underlying principles of community structure.

Robert Morris, D.S.W., Brandeis University, discussed "Demographic Changes and Their Effects on Community Fact Finding," commenting: "Long term illness has become of prime importance. People over sixty-five need four times the volume of medical services. The character of the acute hospital population is going to change—what are our hospitals going to do about this? They won't take people not needing acute care."

Obituary

Phoeba Ann Fowler. The A.D.A. office has received word of the death in Oklahoma City on April 4 of Phoeba Ann Fowler, since 1953 Director of Dietetics, Oklahoma Department of Mental Health. Miss Fowler, who had been an A.D.A. member since 1949 and a life member since 1959, had served on the staff of Massachusetts General Hospital, Boston, before accepting the position in Oklahoma. During World War II, she was a Wave. Her home was in Ninnekah, Oklahoma.

HANDBOOK OF DIET THERAPY

3rd edition by Dorothea F. Turner

DEVELOPED FOR THE AMERICAN DIETETIC ASSOCIATION

- Descriptions of therapeutic diets
- Menu plans
- New tables on food composition
- Revised glossary of dietetic terms

The handbook includes new chapters on diet during pregnancy, adolescence, and old age; on energy expenditure; on fatty acid modifications; and on phenylalanine restrictions.

A 208-PAGE AID TO:

DOCTORS
NURSES
DIETITIANS
NUTRITIONISTS
MEDICAL STUDENTS
HOME ECONOMISTS

ORDER FROM
THE AMERICAN DIETETIC ASSOCIATION
620 NORTH MICHIGAN AVENUE
CHICAGO 11, ILLINOIS
PRICE: $5.00

News of Products and Services

Meals-on-wheels has announced the new Electra II, a mobile food cart providing for the systematic delivery of hot and cold foods. Side-by-side heated compartment trays match horizontally with corresponding trays in the side-by-side cold compartment. The "tray-on-tray" concept makes it possible quickly to place the hot food tray on the cold food tray. The smaller tray matches the larger tray so snugly it is hardly noticeable that there are two trays. The new model has more usable top space; an ice cream freezer; a utility shelf and drawer; and space-saving compressor recessed within the unit.

A new line of frozen prepared entrées developed exclusively for the food service industry has been announced by Institutional Products Division of *General Foods Corporation*. Twenty-six quantity pack entrées in the meat, fish, poultry, and variety categories are being test marketed in six cities. Packaged in polyethylene bags or aluminum trays, they are ready to be heated by either conventional heating equipment or electronic oven. The recipes for these entrées were developed by chef Robert Kreis, of Brown Derby fame and creator of "Good Seasons" Salad Dressing Mix. The new line permits expanded menu selection without additional manpower; fast service; and ready use in emergencies. Six single-service entrées are also included. Items available in quantity packs are: braised Swiss beef steak with gravy, beef stew, beef pot roast with gravy, beef goulash, beef Stroganoff, beef Bordelaise, sliced meat loaf with mushroom gravy, old-fashioned meat balls with mushroom gravy, grilled corned beef hash with sauce, chicken fricassee, chicken and fluffy dumplings, southern fried chicken, chicken Bercy, chicken chow mein, turkey in white sauce, shrimp creole, baked fish with dressing and sauce, seafood Newburg, Welsh rarebit, and macaroni and cheese with topping. Six additional items are available in both quantity and single-packs: lobster Newburg, shrimp curry, baked filet of sole in white wine sauce, veal cutlet Bercy, coq au vin (chicken in wine sauce), and stuffed Cornish game hen.

To eliminate sorting of wastes in institutional food service, *Salvajor* is

FIX YOUR MIND ON GOOD CITRUS BEVERAGES . . .

If you're concentrating on serving a citrus beverage with real taste-appeal, sound nutrition and powerful economy . . . you want BOMBAY. These orange, grapefruit, lemonade and blended bases have proven their mettle in some of America's largest and most respected institutions. No artificial flavor, no artificial color, no preservatives added. Saves space, saves refrigerating, saves money! Write today for sample, without obligation. The H. R. Nicholson Co., Kenshaw & Oakleaf Aves., Baltimore 15, Md.

BOMBAY **CALIFORNIA VALENCIA ORANGE, GRAPEFRUIT, LEMONADE, BLENDED ORANGE and GRAPEFRUIT**

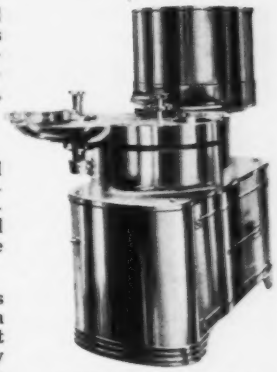
Patty Burger says:

WHEN THE PORTION'S RIGHT

COST CONTROL'S AUTOMATIC!

Here's the Automatic Food Shaper preferred by dietitians everywhere! It always produces perfectly portioned patties with a minimum of time, labor and supervision. Fill the hopper with any food mixture served in patty form. Snap the switch. No special skills. No mechanical headaches. Portion control is Automatic! Patty thickness and weight is instantly adjustable – anytime *you* desire!

See how Automatic shapers slash waste and preparation costs. It's the machine that saves enough money to pay for itself in a few months. Write today for free folder "How To Make Heavenly Hamburgers."



Model DA Automatic Food Shaper for heavy duty service. Capacity is 2400 patties an hour. Other models available for either light duty or heavy duty service.

AUTOMATIC FOOD SHAPING COMPANY, INC.
370 LEXINGTON AVENUE, NEW YORK 17, N. Y.

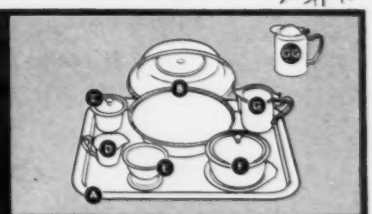
HOSPITAL TRAY SERVICE**
in Sanitary Stainless Steel by LEGION

Durable, economical, attractive. A complete hospital tray service in stainless steel, including the famous Legion Dri-Hot plate* which permits the transportation of complete meals from kitchen to bedside, holding serving temperatures for a minimum of 1½ hours.

*(*A Legion Patented item for transferring hot foods from kitchen to bedside, retaining temperatures for 1½ hours. Available to fit plate size from 7¾" to 10⅜", O.D.) Patent Pending.*

**COPYRIGHT

★ Nesting style cover used here as underliner. Also available with dome cover. Specify.



Hospital Tray service includes:

- (A) TRAY S-12033 14¼" x 18¼"
- (B) DRI-HOT PLATE UNIT LEGCO 1509 HP 9" diam.
- (C) SUGAR BOWL S-702H 4" O.D. x 2¼" hi. 4 oz. cap.
- (D) CREAMER S-8014 3¼" O.D. x 2½" hi. 4 oz. cap.
- (E) SUNDAE CUP LEGCO 4022 3⅜" O.D. x 2⅛" hi. 5 oz. cap.
- (F) VACUUM BOWL S-1151VH • 5" dia. x 2¼" D 10 oz. cap.
- (G) Legco 10 BEVERAGE SERVER 3" O.D. x 3⅞" hi. 10 oz. cap.
- (VG) *Also available, Vacuum Beverage Server,* Legco VH10 3¾" diam. I.D., 4½" hi. 10 oz. cap.

One piece no-drip sanitary spout, cover hinges to 180°, insulated handle for safety in pouring.

See your local Legion representative or franchised dealer or write to:

LEGION UTENSILS CO., INC.
21-07 40TH AVENUE, LONG ISLAND CITY 1, NEW YORK

Representatives: **CALIFORNIA • BEVERLY HILLS • MIAMI BEACH**

offering a scrapping trough, 12 ft. long, to be used in conjunction with one heavy-duty disposer. A flow of water in excess of 60 gal. per minute (gpm) conveys the waste within the trough. With only 10 gpm required by the disposer, the other 50 gpm water are recirculated without loss. The extended length enables several operators to work at the soiled dish table without confusion.

The Quaker Oats Company has introduced a bite-size, shredded, presweetened oat cereal, "Life," which contains essential protein elements said to be 100 per cent as efficient as that of milk or meat. The cereal is also vitamin-enriched. Available in a 10-oz. package at present, announcement of other sizes for institutional use is expected in the summer.

A six-page folder from *S. Blickman, Inc.*, pictures and describes three new, compact Foodveyors. The CSM-20LH has a twenty-meal capacity with ten drawers (two hot meals per drawer); the CSM-24LH has twenty-four meal capacity (eight drawers; three hot meals per drawer); CSM-20LG with a twenty-meal capacity has six drawers —three hot meals per drawer, plus a drawer containing two hot meals. A complete refrigeration system is located between hot and cold compartments leaving an unobstructed top work surface. The "convertible" hot compartment features drawers or twin-tray for loading and assembling trays in the patient area. Horizontally designed hot liquid dispensers hold thirty 6-oz. cups of coffee, tea, water, or clear soup. A removable, insulated ice cream compartment with a capacity of twenty-four-bricks is optional.

To add menu variety, save labor, and trim food operating costs *The Processed Apples Institute* offers to food operators its 1961 selection of quantity recipes using canned apple sauce, slices, and juice. Published under the title, "Taste Tempting Recipes," sixteen recipes including appetizers, entrées, relishes, salads, pies and other desserts were developed by experts, tested by a taste panel, and served in actual food operation. The selection is adaptable to all types of food service. Printed on one side only, the recipes can be mounted on 5 by 8 in. cards for convenient filing.

Plastics Manufacturing Co. now has cups decorated to match four patterns of its Regal Decorated line. Patterns are molded in, cannot fade or wear away, and withstand automatic dishwashing machines or scalding water.

An extra strong glass decanter with stainless steel pour spout has been introduced by *Continental Coffee Company*. The rippled glass bowl is reinforced by a wide stainless steel band. A plastic handle attached to the band and the neck of the container provides sturdy construction to eliminate bent pour spout and loose handle. The handle may be removed. The decanter may be used with all makes of electric range, warmer, and ½-gal., probe-type automatic brewing machine.

Continental has also announced a new granulated breading mix consisting of bread crumbs, milk, eggs, and seasonings for fish, chicken, and meats. Combined with a light batter, it provides a heavier crust for use in such dishes as French-fried onion rings. The new mix is available in 5-lb. polyethlene lined bags or 50-lb. fiber drums.

A new counter top electric oven manufactured by *Bakers Pride Oven Co., Inc.*, may be used for baking pies, biscuits, buns, or with a slight modification, pizza. The oven will hold eight 10-in. pies or two 20 by 20 in. bun pans. Frozen foods need not be thawed before baking. The oven is designed for stacking.

Pure-Pak, the packaging equipment division of *Ex-Cell-O Corporation*, has announced a new 1-gal. size carton to be offered to dairymen some time this year. A plastic-coated carton with handle will be optional.

Four new Wimco oven models, 27-1DO, 27-2DO, 27-1SO, and 27-2SO, have been announced by *Keating*. These small ovens, 27 by 18 by 30 in., have an input rating of 130,000 BTU per hour providing quick temperature recovery when heavy loads or frozen foods are placed in the oven. The oven will preheat in less than 10 min. All models carry the American Gas Association seal of approval.

Embroidered cloth emblems, green on white, bearing the seal of The American Dietetic Association, to be worn on the blouse of the uniform, are available to members and to dietetic interns at the following prices:

Seal **30c**

Tab* **20c**

(*) Please specify *Dietitian* or *Dietetic Intern*

Please make remittance payable to:

THE AMERICAN DIETETIC ASSOCIATION

620 North Michigan Avenue

Chicago 11, Illinois

INDEX TO VOLUME 38

The following abbreviations indicate the source of material indexed: "ab," abstract under Current Literature; "br," Book Reviews; "cc," Current Comment; "ed," Editorial; "f," filler; "l," Letters to the Editor; and "nn," News Notes. An asterisk indicates an original article in this JOURNAL. Book Reviews appear in the subject index under the heading, "Book Reviews." The Author Index, which follows the Subject Index, includes only the names of the authors of original material appearing in this JOURNAL in full or abstracted in the editorial section or in fillers, and the authors and reviewers of books reviewed.

A

Acceptance Service, USDA
  for foods, ab 72
  for meats, ab 72
Accidents, work injuries in lunchrooms, ab 164
Accounting, see Cost
Acid-base balance in surgery, ab 278
Acidity of gastric contents, *426
Additives, need for determining safety scientifically, ab 154
Administration, food, research in, *444
Administrators, hospital, survey of, ab 280
Adolescents
  height and weight, changes in, ab 157
  nutrition of, ab 76
    education, ab 76
Adventist children, caries in, ab 576
Africa, Kung bushmen, health of, ab 578
Aged
  cholecystostomy in, ab 57
  nutrition of, and operability, ab 268
  vitamin B_{12} deficiency in, ab 268
Air circulation in roasting beef, ab 569
Air-conditioning for kitchens, ab 384
Alaska, salmonella in, ab 65
Alcoholism
  tryptophan metabolism, defect in, ab 276
  zinc, metabolism in, ab 61
Ales, nutrients in, ab 380
Allergy, milk, in ulcerative colitis, ab 471
Aluminum foil, booklet on, nn 302
Amblyopia, nutritional, ab 155
Amebiasis, preventing, ab 376
American Dietetic Assn., The
  management seminar, nn 506
  new publications, nn 298
  Nominating Committee Report, 1960-61, 253
American Heart Assn., report on dietary fat, ab 368
American Medical Assn., reorganization in, nn 286
Amino acids
  in body fluids, estimating, ab 270
  in fruits, ab 58
  imbalance and growth depression, ab 572
  methods for measuring
    for clinical analyses of, ab 570
    for measuring in blood and urine, ab 570
  in milled wheat flour, ab 264
  needs of infants, ab 376
  reference patterns, ab 274
  in schizophrenia, ab 382
  in seed meals, ab 376
  supplementation, ab 262
    corn meal, ab 274
Ammonia metabolism in liver disease, ab 351
Anemia, pernicious
  in Jamaica, ab 471
  oral treatment of, ab 471
Animals
  laboratory, bibliography on, ab 374
  role in nutrition research, *236
Anorexia nervosa, ab 65
Antarctic, body weight of men in, ab 58
Antibiotics
  effect on intestinal flora, ab 567
  as food preservatives, ab 60
    in beef, ab 58
    for poultry, ab 59
    for shellfish, bacterial growth in, ab 154
  and pesticide residues, ab 378
  plus radiation to preserve fish, ab 569
Antibody formation in vitamin deficiencies, ab 63
Appetite as regulator of food intake, ab 55
Apple juice, frozen, nn 290
Arteriosclerosis and carbohydrate metabolism, ab 155, ab 472
Arthritis, salmonella, ab 63
Ascorbic acid
  and bioflavonoids, research on, *225
  destruction of, ab 58
  effect in guinea pigs, ab 572
  in frozen vegetables, ab 471
  in gastric hemorrhage, ab 56
  plasma, sources of, ab 266
Asia, studies on milk, ab 153
Atheroma, phospholipid synthesis, and, ab 569
Atherosclerosis
  and hyperglyceridemia, ab 464
  recent research in, *224
  and serum cholesterol in Morocco, ab 156
Attitudes toward food
  children's, ab 270
  of military personnel, *439
  and the use of food, *546
Australia
  breads in, ab 266
  gluten-free bread, ab 61, f 146, ab 266, l 590
  scurvy in Victoria, ab 58
  use of processed citrus fruits in, ab 154
Automation in food processing and serving, *119

B

Babcock, S. M., biographical note, f 78
Baby foods, vitamin B_6 in, ab 65
Bagassosis, ab 60
Bain marie
  care of, ab 282
  time-temperature relationships of custards made with whole egg solids, *43
Baking
  decorating, ab 166
  in paper cups, ab 70
Beef
  cooked
    flavor components, ab 266
    volatile constituents of, ab 155
  preservation with antibiotics, ab 58
  roasting, effects of oven temperature and air circulation, ab 569
  storage of irradiated, ab 571
  use of cheaper cuts, ab 162
Beers, nutrients in, ab 380
Beriberi heart disease, ab 158
Beverages, dispensers for, ab 68
Bile acids
  excretion and dietary fats, ab 155
  and serum cholesterol depression, ab 572
Biochemical measurements, methodology for, ab 57
Bioflavonoids and ascorbic acid, research on, *225
Biologic warfare, effect on food, *249
Biotin in foods, *240
Blind persons as cafeteria managers, ab 164
Blood
  cells
    riboflavin in red, ab 261
    zinc in, in liver disease, ab 268
  diseases, trace minerals in, ab 261
  ketones and plasma free fatty acids, ab 368
  lipids and proteins in juvenile diabetes, ab 154
  plasma radioactivity and heart disease, ab 153
Boards, cutting, ab 282
Body composition
  fat, ab 382
  of young women, *322
Body form, methodology for measuring, ab 57, *322
Body image disturbances in obesity, *328
Body weight
  of men in Antarctic, ab 58
  new data on, *323
Book Reviews (see also Government publications)
  Foods without Fads, 54
  Nutritional Diagnosis, 152
  Strategies of Leadership in Conducting Adult Education Programs, 152
  World Review of Nutrition and Dietetics, 54
Boron in organ meats, *345
Botulism
  in Canada, ab 471
  in chocolate nut roll, ab 58
Brain function and pyridoxine deficiency, ab 576
Bread
  in Australia, ab 266
  in Great Britain, ab 264
  instant mix, ab 374
  laws regulating in England, ab 264
  nutrients in samples from 14 countries, *27
  phosphated, and dental caries, ab 62
  supplementation with lysine and threonine, ab 274
Breading in food preparation, ab 76
Breakeven point in accounting, ab 582
Breast-feeding and linoleic acid adequacy, ab 474
Bricker, M. J., named Executive Secretary, American Home Economics Assn., nn 82
Broccoli, supplement, effect after irradiation, ab 473
Brucella in milk in Britain, ab 578
Brucellosis, future of, ab 66
Budgeting, ab 474
Burns, potassium needs in, ab 578
Bushmen, Kung, health of, ab 578

C

Calcium
  absorption and protein intake, ab 370
  availability in ultra-high-temperature-sterilized milk, ab 156
  balance studies, methods for, ab 382
  in organ meats, *344
  and strontium-90 in foods, *15
    of Britain, ab 471
Calories, intake and expenditure, ab 382
Calorimetry, publication standards for papers on, ab 158
Camps for handicapped, directory of, nn 598
Canada
  botulism in, ab 471
  Dietary Standard, digestibility of, ab 62
Cancer
  carcinogenicity of food, tests for, ab 368
  of cervix, serum magnesium in, ab 572
  dietary care in, ab 571
  nutrition in, ab 570
Canned foods, vegetables, ab 76
Canning, high-temperature, short-time method, ab 154
Carbohydrate metabolism
  and arteriosclerosis, ab 155, ab 472
  and cold environment, ab 370
  in infants, ab 576
  in kwashiorkor, ab 368
  in man, ab 378
Carcinogenicity, of food, tests for, ab 368
Cardiovascular disease
  dietary assessment in studies of, ab 366
  serum protein in, ab 276
  and water hardness, ab 60
Caries and phosphated bread, ab 62
Carotenoids in corn, ab 570
Cartier, J., biographical note, f 349
Celiac disease, f 438
  and gluten-free diet, ab 571
    bread for, ab 61, ab 156, ab 266, l 590
      recipe, f 146, l 594

Central America
  children, blood serum constituents of, ab 567
  cholesterol, serum, effect of dietary improvement on, ab 567, ab 567
Cereals, amino acids in seed meals, ab 376
Cerebral palsy, nutritional status of children with, *22
Cesium uptake in milk, f 545
Chairs, evaluating, ab 76
Cheese, blue, flavor, nn 396
Chicken, purchasing, ab 68
Children
  Adventist, caries in, ab 576
  attitudes toward food, ab 270
  Central American, blood serum constituents in, ab 567
  with cerebral palsy, nutritional status of, *22
  cirrhosis, in India, ab 156
  data on, f 331
  diabetes in, ab 574
  hamburgers for, ab 158
  metabolism
    of pre-adolescents, ab 370
    protein in marasmic, ab 60
    thyroxine in, ab 156
  National Conference on Day-Care for, nn 196
  obese girls, survey of, ab 153
  restaurant specialties for, ab 386
  serum cholesterol values in, ab 568
  sulphur balances before adolescence, ab 62
  thyroxine metabolism in, ab 156
  White House Conference on, report, *354
Chocolate nut roll, *C. botulinum* in, ab 58
Cholesterol
  blood, and atherosclerosis, ab 274
  -depressant diet cook book, nn 406
  metabolism and personality, ab 65
  serum
    alterations due to fat intake, ab 64
    and atherosclerosis in Morocco, ab 156
    bile acids and depression of, ab 572
    in children, ab 568
    and dietary intake, *534
    effect
      of dietary fats an, *227, ab 568
      gross dietary changes on, ab 567
      low-fat intake on, ab 368
    in India, ab 378
    lowering with unsaturated fats, ab 261, *536
    and weight of coronary patients, ab 264
Choline
  deficiency in pregnant rats, ab 262
  in foods, *240
Cirrhosis
  childhood, in India, ab 156
  renal excretion in, ab 380
  zinc metabolism in, ab 382
Citrus fruit
  booklet for school children on, nn 97
  consumption, nn 395
  drinks, frozen, sweeteners in, ab 59
  nutrients in California oranges and lemons, *552, *555
  processed forms used in Australia, ab 154
Civil defense, nn 194
  bibliography revised, cc 259
  and biologic warfare, food aspects, *249
  dietitian's role in, *246
  disaster training in food service, cc 461
  food for survival, ab 588
  hospital disaster plans, cc 258
  and the school food director, cc 257
  2 weeks in a family shelter, f 36
Cleaning
  detergents, ab 280
  kitchen, assignments for employees, ab 158
  of surfaces, ab 164
Cleft lip and palate, surgery for, ab 262
Coconut
  Hawaiian research on, nn 396
  oil vs. milk fat, ab 154
Codfish, place in colonial history, f 535
Coffee, ab 482
  booklet on brewing, nn 510
  break, disadvantages of, ab 160, f 559
  equipment for brewing, ab 484
  flavor, components of, f 26
  magnesium in, *438
Cold
  environment
    and carbohydrate metabolism, ab 370
    and energy expenditure, ab 55
  influence on fat metabolism, ab 56
Colitis
  acute necrotizing, ab 278
  ulcerative, milk as allergen in, ab 471
Colombia, nutrition education in, ab 378
Communication
  feed-back defined, l 174
  internal, importance of, ab 284
  problems in nutrition education, *546
  theory of, ab 156
  training in, ab 388
Community nutrition
  Nutrition during Pregnancy and Lactation, published, nn 288
  Standards and Recommendations for Public Prenatal Care, published, nn 288
Computer
  electronic, functions of, ab 582
  role in cost control, ab 160
Consultant dietitian, cc 357
Consumption (see also Food intake)
  of citrus products, nn 395
  food
    and preferences, *439
    in U.S. in 1960, nn 184
Convenience foods, factors in selection, ab 374
Cooper, L. F., obituary, 458
Copper
  in organ meats, *344
  poisoning from corroded water heater, ab 268
Corn
  carotenoids in, ab 570
  meal, amino acid supplementation of, ab 274
  oil, oxidized, effect on fat composition of rats, ab 576
  threonine availability, ab 274
Coronary disease
  artery, and serum fatty acids, ab 574
  niacin therapy in, ab 64
Cost
  accounting
    figuring breakeven point, ab 582
    in food service, f 353
  booklet on analyzing, nn 86
  control
    with a computer, ab 160
    food, ab 66
  of dishwashing, ab 392
  of food in U.S., f 436
    in hospitals, survey of, ab 72
Cranberries, place in colonial history, f 535
Cream, sour, f 449
Creatinine
  -nitrogen ratio in urine to estimate dietary protein, ab 380
  serum, in kwashiorkor, ab 567
  urinary excretion in kwashiorkor, ab 567
Creative thinking, ab 74
Cross-chart in methods improvement, *125
Crumbs, bread, ab 484
Crustaceans, painless killing of, ab 382
Custards made with whole egg solids, time-temperature relationships, *43, *49, *147

D

Dates, California, characteristics of, ab 482
Deep-frying, pointers for, ab 474
Deficiency
  in nutritional amblyopia, ab 155
  potassium, ab 473
  protein
    combating, ab 276
    and choline in pregnant rats, ab 262
  vitamin, antibody formation in, ab 63
  vitamin B_{12}, ab 156
    in aged, ab 268
Dehydrated foods
  cooking, ab 65
  evaluation of flavoring materials, ab 374
  honey, nn 184
  onions
    equivalent weight of, ab 154
    use of, ab 158
  soybean milk, f 562
Dehydro-freezing, see Freeze drying
Delegation, film on, nn 288
Denver, dishwashing efficiency survey in, ab 282
Dept. of Agriculture
  Acceptance Service, ab 72, ab 72
  inspection and certification program, f 364
de Reaumur, R. A. F., biographical note, f 127
Desserts, popularity of, f 327
Detergents, ab 280
Deuel, H. J., Jr., biographical note, f 454
Diabetes
  booklet on Exchange Lists published, nn 395
  glucose metabolism in pregnancy, ab 154
  insulin may be synthesized, f 121
  in Jews, prevalence, ab 380
  juvenile, ab 574
    lipid and protein levels in, ab 154
  ketones and free fatty acids, ab 368
  meal eating vs. nibbling in, ab 382
  pathology of, ab 276
  plasma fatty acids in, ab 61
  synthesis of plasma lipids in, ab 569
  undiagnosed
    overweight in, ab 571
    value of weight reduction in, ab 571
  vital statistics on, ab 576
Diarrhea, origin of infection, ab 158
Diet
  as related to gastrointestinal function, *425
  and heart disease, *531
Diet orders, reporting changes in hospital, ab 476
Diet therapy
  in cancer, ab 571
  Exchange Lists, new booklet published, nn 395
  after gastrectomy, ab 464
  gluten-free diet, ab 571
    bread for, ab 61, ab 156, ab 266
      recipe, f 146, I 594
    in celiac disease, ab 571
  high-fat reducing diet, ab 156
  low-calorie diet, planning, ab 262
  Metrecal in reducing, ab 261
  protein intake in liver disease, *350
  rational practices, *425
  vegetable-oil food pattern, *536, *540, *543
Dietary surveys
  assessing nutritional status, ab 266
  in cardiovascular studies, ab 366
  methodology, ab 56
Dietetics
  in France, ab 382
  in Philippines, l 590
  in South Africa, l 594
Dietitians
  in civil defense, *246
  consultant or shared, cc 357
  dual role of, ab 160
  in health mobilization, *246
  shared, l 174, cc 357
    first meeting of, ab 492
  shortage in England, ab 268
  war service tribute to, l 594
Digestibility
  of foods, *427
  in Canada, ab 62
  of nutritionally adequate diet, ab 62
Disaster training in food service, cc 461
Dishwashing, ab 66
  costs, ab 392
  efficiency survey in Denver, ab 282
  field test for procedures, ab 158
  film on, nn 406
  of glasses, ab 392, ab 392
Dispensers, beverage, ab 68
Diuretics in hypertension, ab 574
Dumping syndrome, ab 274
  controlling emptying time of stomach, ab 464
Dust, electronic control of, ab 158
Dysentery, bacillary, effect of antibiotics on intestinal flora, ab 567

E

Economics, food cost in U. S., f 436
Education
  nutrition, by mail, f 176
  of self-care patients, ab 160

teaching machine, ab 480
Eggs, source of salmonella, ab 64
Electrocardiograms after fat meals, ab 276
Electrolytes
in human saliva, ab 569
in hypertension, ab 574
Electronic cooking, utensils for, ab 572
Emergency feeding
bibliography revised, cc 259
in biologic warfare, *249
health mobilization and, *246
hospital disaster plans, cc 258
training experience for, cc 461
Employees
older office worker, ab 74
recruiting better, ab 278
Energy
expenditure
and intake, ab 382
relation to cold environment and specific dynamic effect, ab 55
requirements in extreme heat, ab 473
Episodic stupor in liver disease, *351
Equipment
air-conditioning, ab 384
chairs and tables, ab 76
cleanability of, ab 166
designers data book on, ab 584
food service, new trends in, ab 280
holding, for hot food, ab 484
kitchen, of the future, ab 278
leasing, ab 282
mobile, in hospital, ab 584
obtaining money for, ab 282
refrigerators
care of, ab 162
gas, hazard of, f 260
restaurant, in Europe, ab 74
selecting, ab 164
solar cookers and ovens, f 256
specifications, ab 166
ventilators and filters, ab 166
versatility, need for, ab 392
Euthyroidism, serum lipoproteins in, ab 464
Exchange Lists, new booklet, nn 395
Executives, survey of hospital, ab 280
Exercise
effect on free fatty acids, ab 366, ab 576
and hypoglycemia, ab 568

F

Faddism, food, vitamin seizure due to false claims, f 31
Fallout
cesium uptake in milk, f 545
in foods, *15, ab 570
in milk, f 53, ab, 570
and people, ab 278
in United Kingdom, ab 471
in wheat, ab 578
plant uptake of strontium-90, ab 570
Fat
as adipose organ, ab 368
American Heart Assn, report on dietary, ab 368
basic, in foods, *537
body
content of, *322, ab 382
and meal-eating vs. nibbling, *433
cereal and nutritional disease in pigs, ab 380
composition of rats as affected by oxidized corn oil, ab 576
dietary, and bile acid excretion, ab 155
high-, diet for reducing, ab 156
intake
high, electrocardiograms after, ab 276
low
cook book on, nn 406
effect on serum cholesterol, ab 368
and serum cholesterol, ab 64
and serum triglyceride, ab 380
in meat
effect of phosphates on, ab 472
flavor comes from, nn 184
raw and cooked, *540
metabolism
influence of cold on, ab 56
and intestinal mucosa, ab 472
milk vs. coconut, ab 154
mobilization
factors affecting, ab 56
in obese and lean subjects, ab 56
oral, effect on liver cells, ab 268
of organ meats, *344
in pork, and quality, ab 471
solids in milk, changing, ab 270
transport in man, ab 157
vegetable-oil food pattern, *536, *540, *543
Fats
changes during heating, ab 59
dietary, effect on serum cholesterol, *227
nutritive value of commercial, ab 62
polyunsaturated, and tocopherol requirements, *231
unsaturated, lower serum cholesterol, ab 261
Fatty acids
blood
distribution in blood lipids, ab 464
effect of exercise and isoproterenol on, ab 366
obese vs. lean subjects, ab 56
deficiency, *533
free
and blood ketones, ab 368
effect of exercise on, ab 576
hepatic uptake of nonesterified, ab 56
plasma, in diabetes, ab 61
serum, and coronary artery disease, ab 574
Favism
hemolysis inhibitor deficiency in, ab 270
in nursing infant, ab 473
Feces volume and food intake, *428
Federal Trade Commission, ab 568
Feed-back, defined, l 174
Fellowships in nutrition science, nn 596
Films
"Consumers Want to Know," nn 180
on delegation, nn 288
on dishwashing, nn 406
"Focus on Food Dollars," nn 180
on obesity, nn 184
preparing, booklet on, nn 395
on sandwich-making methods, nn 404
Fire precautions in the kitchen, f 252
Fish
frozen, storage changes in, ab 471
poisoning, ab 474
preservation by radiation plus antibiotics, ab 569
sodium and potassium in Puerto Rican, *341
Flatware, stainless steel, ab 282
Flavor
components of cooked beef, ab 266
in meat fats, nn 184
off, in foods, ab 570
Floors, ab 476
Flour, amino acids in wheat, ab 264
Fluorosis, skeletal and neurologic complications, ab 473
Folic acid in foods, *240
Food
children's attitudes toward, ab 270
as gastric-acid secretion stimulators, ab 366
Food composition
ascorbic acid in frozen vegetables, ab 471
of beers and ales, ab 380
of California lemons, *552, *555
of California oranges, *552, *555
of honey, ab 571
lesser known vitamins in food, *240
magnesium in accessory foods, *437
of milled wheat products
amino acids in, ab 264
vitamins in, ab 264
minerals and proximate composition of organ meats, *344
of pork, f 230
proximate, of rockfish, ab 571
sodium
in Hawaiian produce, ab 571
and potassium in Puerto Rican meats and fish, *341
Food costs
booklet on analyzing, nn 86
in hospitals, survey of, ab 72
Food and Drug Administration consumer education program, nn 286
Food faddism
government programs against, ab 572
in New Zealand, ab 472
television series to combat, nn 288
vitamin seizures due to false claims, f 31
Food habits
during pregnancy, ab 153
fruit and vegetable eating in U. S., f 140
in West Indies, ab 382
Food intake
appetite as regulator, ab 55
and attitudes, *546
in hot environment, ab 65
meal-eating vs. nibbling, and body metabolism, *433
nervous regulation of, ab 55
Food-for-Peace program, ab 270
Food poisoning
botulism in Canada, ab 471
from fish, ab 474
heat destruction of organisms in frozen precooked protein foods, ab 571
origin of diarrheal infections, ab 158
salmonellae and staphylococci in refrigerated foods, ab 366
due to sodium chloride, ab 153
and staphylococcus, ab 157
from turtle meat, ab 276
Food preparation (see also Baking, Meat, Roasting)
automation in, *119
breading, ab 76
of dehydrated foods, ab 65
Food service
in convalescent hospital, ab 70
management expectations of, ab 386
in nursing homes, booklet, nn 394
supervisors, training of, ab 70
Formula diets
Metrecal in reducing, ab 261
mislabeling of, f 134
in reducing, f 340, ab 486
France, dietetics in, ab 382
Frankfurters, production of, f 432
Freeze-drying, ab 278, ab 584
changes in muscle protein, ab 58
in Europe, ab 582
shrimp and applesauce now available, ab 158
Freezers
maximum use for, ab 70
sanitation standard for, ab 494
space, planning for, ab 72
Frozen foods
bacteriology of, ab 571
citrus drinks, sweeteners in, ab 59
consumer use of, ab 478
cook-in-bag meals, ab 68, ab 158, ab 478, ab 586
effect on muscle proteins, ab 58
fish, storage changes in, ab 471
"Freezing Prepared Foods" booklet, nn 598
gourmet entrées, ab 384
leftovers, ab 66
liver, freezer-burn in, ab 569, ab 569
meat pies, bacteria in, ab 571
packaging, flexible, for, ab 584
precooked
heat destruction of bacteria in, ab 571
microbiology of, *132
quality and safety of, ab 60
seafood, use of, ab 159
spinach, time-temperature tolerance, ab 59
storage needs for, ab 474
time and temperature in storage, ab 59, ab 584
vegetables, ascorbic acid in, ab 471
Fruits
amino acids in, ab 58
dietary contribution in U. S. diet, f 140
household use of, *32, *37, *135, *141
sodium in Hawaiian, ab 571

G

Galactosemia, ab 262
"Gas-producing" foods, *429
Gastrectomy
controlling stomach emptying time after, ab 464

difficulties after, ab 268
dumping syndrome after, ab 274
for duodenal ulcer, ab 382
vitamin B_{12} neuropathy after, ab 264
Gastric secretion
fats, effect on, *426
and histamine, ab 568
spices, effect on, *426
stimulation with foods, ab 366, *425
Gastrointestinal function, diet as related to, *425
Geriatrics history, place of Rubner in, ab 374
Glasswashing, ab 392, ab 392
Globulin, gamma, to prevent hepatitis, ab 59
Glucagon, effect on protein metabolism, ab 370
Gluconeogenesis and pyruvate metabolism, ab 266
Glucose metabolism
abnormal in pregnancy, ab 154
and cold environment, ab 370
Gluten
-free bread for celiacs, ab 61, ab 156, ab 266
recipe, f 146, l 594
-free diet, ab 571
Goiter, endemic, ab 66
Gout, kidney in, ab 274
Government publications
Agricultural Outlook Charts 1961, nn 85
Calculating the Nutritive Value of Diets, nn 180
Consumption of Processed Farm Foods in the United States, nn 85
Energy Expenditures of Women Performing Selected Activities, nn 178
Food Costs, nn 598
Food for Groups of Young Children Cared for During the Day, nn 286
Food and Your Weight, nn 85
Heights and Weights of Adults in the United States, nn 180
Milk Consumption by Children at School and at Home in Relation to Special Milk Program, nn 85
Nutrition Committee News, issue on preparing posters, nn 286
Tips on Selecting Fruits and Vegetables, nn 598
U. S. Grades of Beef, nn 180
Grease removal in kitchens, booklet, nn 402
Great Britain
bread, laws regulating, ab 264
brucella in milk in, ab 578
shortage of dietitians, ab 268
strontium-90 and calcium in foods, ab 471

H

Ham
irradiated, bacterial resistance in, ab 374
salt accumulation during curing, ab 154
Handicapped mothers, bibliography on child camps for, directory, nn 598
care problems of, nn 494
Hawaii, fruits and vegetables, sodium in, ab 571
Heart disease
beriberi, ab 158
and diet, *531
in Negro diabetics ab 569
plasma radioactivity in, ab 153
in South African colored, ab 157
weight, and serum cholesterol, ab 264
Heat
changes in fats during, ab 59
energy requirements in extreme, ab 473
Height of adolescents, ab 157
Hemolysis inhibitor deficiency in favism, ab 270
Hemorrhage, gastric, effect of hesperidin and ascorbic acid in, ab 56
Hepatitis
gamma globulin to prevent, ab 59
treatment of, ab 59
Hesperidin, effect in gastric hemorrhage, ab 56
Histamine and gastric secretion, ab 568
History of nutrition
Babcock, S. M., biographical note, f 78
Cartier, J., biographical note, f 349
cranberries and codfish, f 535
de Reaumur, R. A. F., biographical note, f 127
Deuel, H. J., Jr., biographical note, f 454
home economics research contributed to, ab 156
Macleod, J. J. R., biographical note, f 529
research in last 40 years, *236
Rubner, M., place in geriatrics, ab 374
Stern, F., biographical note, f 226
Home economics, research contribution to nutrition, ab 156
Honey
composition of, ab 571
dried, nn 184
Hormonology in nutrition, ab 278
Horton, M., retires, nn 82
Hospital food service
in convalescent, ab 70
cycle menus in a hospital chain, cc 362
dietary-administration relationships, ab 384
extras in, ab 159
mobile equipment in, ab 584
reporting diet order changes, ab 476
Hospital, Institution, and Educational Food Service Society formed, nn 82
Hospitals
disaster food plans, cc 258
personnel management in, *128
salary survey, ab 476
Hot environment, food consumption in, ab 65
Human growth hormone, effects of, ab 61
Hunger
gastric contractions controlled by hypothalamus, ab 55
-motivating centers, ab 578
and satiety in man, ab 55
Hypercholesteremia
a fatty acid deficiency? *533
serum lipoproteins in, ab 464
Hyperglyceridemia, ab 464
Hyperlipemia
in nephrosis, ab 64
serum lipoproteins in, ab 464
Hypertension
diuretics and diet in, ab 574
electrolytes in, ab 574
obesity and adrenal activity changes, ab 268
precursors of, ab 574
Hyperthyroidism, serum lipoproteins in, ab 464
Hypoglycemia
leucine-induced, ab 63, ab 262
and muscular exercise, ab 568
Hypothalamus, control of gastric hunger contractions, ab 55
Hypothyroidism, serum lipoproteins in, ab 464

I

Ice cream, soft, use in restaurants, ab 586
India
childhood cirrhosis in, ab 156
effect of feeding insect-infested jowar, ab 368
nutritional status in, ab 270
serum cholesterol in, ab 378
Indonesia, dehydrated soybean milk in, f 562
Infants
acidified milk and intestinal pathogens in, ab 153
amino acid needs of, ab 376
breast-feeding and linoleic acid adequacy, ab 474
carbohydrate metabolism in, ab 576
cow's vs. human milk for, ab 376, ab 569
favism in nursing, ab 473
feeding solids to newborns, ab 70
foods, vitamin B_6 in, ab 65
iron requirements, ab 376
milks for, compared, ab 569
premature
feeding, ab 63, ab 473
intramuscular in anemic, ab 57
protein
allowances in, ab 376
requirements, ab 376
tocopherol and nitrogen levels in, ab 572
sodium chloride poisoning in, ab 153
strontium absorption in, ab 157
Ingestion rate, effect on metabolism, ab 56
Inositol in foods, *240
Insecticide residues
in meat, ab 154
in milk, ab 154, ab 154
Insects, infestation in jowar, effect of rats, ab 368
Insulin, metabolism in pregnancy, ab 266
Intestinal absorption and mesenteric lymphatics, ab 276
Intestinal flora, ab 567
effect on ingested food, *428
Intestinal mucosa in fat metabolism, ab 472
Intrinsic factor, loss in gastrectomy, ab 264
Iodine, protein-bound, normal values, ab 262
Iophenoxic acid, effect of, ab 474
Iron
compounds, toxicology of, ab 568
intramuscular in anemia of prematurity, ab 57
in organ meats, *344
requirements of infants, ab 376
Irradiation
broccoli supplement, effect after, ab 473
of foods
ham, bacterial resistance during, ab 374
long-term effect on rats, ab 370
suitability for human intake, ab 370
Isoleucine requirements, ab 473
Isoproterenol, effect on free fatty acids, ab 366
Israel, nutrition of pregnant women in, ab 57

J

Jamaica, pernicious anemia in, ab 471
Japan, nutrition in, nn 288
Jewish dietary laws, ab 376
Jews, diabetes in, ab 380
Job descriptions, preparing, ab 262
Jowar, insect-infested, effect of feeding, ab 368

K

Kaffir corn, nutritional value of, ab 57
Kidney
changes in kwashiorkor, ab 472
in gout, ab 274
Kitchen
air-conditioning for, ab 384
cleaning assignments, ab 158
planning, ab 390, ab 582
Knives, selection and care, ab 474
Kwashiorkor
carbohydrate metabolism in, ab 368
creatinine, serum in, ab 567
protein treatment of, ab 60
renal changes in, ab 472
serum
and liver constituents in, ab 567
proteins in, ab 63
vitamin B_{12} in, ab 63
urinary excretion in, ab 567

L

Labels, value of following directions, ab 486
Labor relations (see also Personnel relations)
Fair Labor Standards Act, ab 278
handling a strike in hospital dietary department, cc 562
and hospitals, ab 586
problems of professional groups in, *560
recruiting better employees, ab 278
union-management relations, *128, ab 278, *560, cc 562
utilization
of labor time, technique for analyzing, ab 586
work sampling to measure performance, ab 586
Lamb, flavor of, ab 266
Land-grant colleges approach 100th anniversary, f 443
Layout
designers data book on, ab 584
kitchen, objectives in, ab 76
partitions, room, use of, ab 578
to reduce noise, ab 588
routing kitchen traffic, ab 390
school cafeteria design, ab 484
space engineering, ab 392
storage areas, ab 578
Leadership, developing, ab 284
Leasing equipment, ab 282
Leftovers, freezing, ab 66
Lemons, California, nutrients in, *552, *555

Leucine
-induced hypoglycemia, ab 63, ab 262
requirements, ab 473
Linoleic acid adequacy with breast-feeding, ab 474
Lipids
blood
and atherosclerosis, ab 274
fatty acid distribution in, ab 464
metabolism in man, ab 378
plasma
synthesis of, in diabetics, ab 569
tests for, ab 274
and time-limited feeding ab 473
serum
levels and dietary protein, ab 63
in liver disease, ab 268
and serum lipoproteins, ab 464
Lipoproteins, serum
in disease conditions, ab 464
in hyperlipemia, ab 464
and serum lipids, ab 464
Listening, scaled to check ability in, ab 160
Lithium salts, ab 376
Liver
effect of oral fat on, ab 268
frozen, freezer-burn in, ab 569
function in pregnancy, ab 471
hepatitis, treatment of, ab 59
uptake of nonesterified fatty acids, ab 56
vitamin K and prothrombin time in liver damage, ab 59
Liver disease
cirrhosis
childhood in India, ab 156
renal excretion in, ab 380
zinc metabolism in, ab 268, ab 382
protein intake in, *350
serum lipids in, ab 268
Lobsters, painless killing of, ab 382
Longevity
effect of overweight on, *325
in U. S., f 131
Lymphatics, mesenteric, and intestinal absorption, ab 276
Lymphosarcoma, metabolic disturbances in, ab 574
Lysine
availability in peanut cookies, ab 57
in heat-processed meats, ab 472
supplementation for bread, ab 274

M

Macleod, J. J. R., biographical note, f 529
Magnesium
absorption and protein intake, ab 370
in accessory foods, *437
in organ meats, *344
serum, in women, ab 572
Mail, nutrition courses by, f 176
Maintenance
detergents, ab 280
kitchen equipment, ab 280
preventive, ab 160
in kitchen, ab 476
of stainless steel, ab 586
Malabsorption syndrome, vitamin B_{12} in, ab 153
Malnutrition, and UNICEF distribution of dry milk, ab 66
Management expectations from food service, ab 386
Manganese
metabolism in women, ab 62
in organ meats, *344
Mangoes, processing research in Hawaii, nn 396
Marasmus, protein metabolism in children, ab 60
Marinades, ab 482
Meal-eating vs. nibbling
and body metabolism, *433
in diabetes, ab 382
effect on metabolism, ab 56
Meat (see also individual types)
basic information on, ab 160
choices of Alabama and Georgia families, booklet, nn 494
cookery, ab 66
digestibility of protein in heat-treated, ab 473
enzyme inactivation prior to irradiation, ab 266, ab 266
fat content of raw and cooked, *540
flavor comes from fat, nn 184
insecticide residues in, ab 154
inspection
and certification program of USDA, f 364
for trichinae, ab 268
low-temperature roasting, ab 569, ab 584
lysine in heat-processed, ab 472
and milk, Biblical laws on, ab 376
organs, minerals and proximate composition of, *344
papain as tenderizer, ab 61
pies, frozen, bacteria in, ab 571
smoked products, regulations on, nn 288
sodium and potassium in Puerto Rican, *341
USDA Acceptance Service for, ab 72
Meetings, how to run, ab 159
Menus
cycle, in a hospital chain, cc 362
design of, ab 586
food combinations, preferences for, *441
planning
for different types of service, ab 482
in nursing homes, ab 586
selective, in hospital, ab 386
type setting for, ab 160
Merit review for personnel, ab 160
Metabolism
inborn errors of, ab 262
meal-eating vs. nibbling, *433
of pre-adolescents, ab 370
Methodology
for biochemical measurements, ab 57
for dietary surveys, ab 56
for measuring body form, ab 57, *332
Metrecal in weight reduction, ab 261
Microbiologic standards for foods, ab 471
Milk
acidified, and intestinal pathogens, ab 153
as allergen in ulcerative colitis, ab 471
Asian studies on, ab 153
brucella in, in Britain, ab 578
cartons
polycoated, ab 278
waxpaper, ab 60
cesium uptake in cows, f 545
changing fat and nonfat solids in, consumer acceptance, ab 270
composition of cow's and human, ab 276, ab 376
different kinds compared for infants, ab 569
digestibility of, *427
fat vs. coconut oil, ab 154
insecticide residues in, ab 154, ab 154
and meat, Biblical laws on, ab 376
nutritive value of, ab 61, f 235
radionuclides in, f 53, ab 570
residues from, *429
solids-not-fat, ab 270
strontium-90 in, f 53
substitutes from soybeans and peanuts, ab 264
ultra-high-temperature sterilization and calcium availability, ab 156
UNICEF program to distribute dry, ab 66
waxed paper cartons, safety of, ab 60
Minerals
in California lemons and oranges, *552, *555
metabolism, and protein intake, ab 370
in organ meats, *344
supplements unnecessary, ab 570
Mixes
baking, ab 384, ab 484
instant bread, ab 374
Modernization, financing new equipment, ab 584
Morocco, atherosclerosis and serum cholesterol in, ab 156
Mortality
effect of weight reduction on, *326
rates in U. S., f 343
Mutton, flavor of, ab 266

N

Neonatal hypothrombinemia, vitamin K_1 in, ab 380
Negro, diabetic, heart disease in, ab 569
Nephrosis, hyperlipemia in, ab 64
New Zealand
food faddism in, ab 472
hospital diets in, ab 472
Niacin
therapy in coronary disease, ab 64
tryptophan as precursor, ab 473
Nibbling vs. meal-eating
and body metabolism, *433
in diabetes, ab 382
effect on metabolism, ab 56
Nitrogen
postoperative balance, ab 274
in premature infants, ab 572
Noise, layout planning to reduce, ab 588
Nurses, role in nutrition education in schools, ab 464
Nursing homes
booklet on food service in, nn 394
menu planning in, ab 586
Nutmeg, narcotic-like effect of, f 48
Nutrition
of aged, and surgery, ab 268
latest advances in, *223
Nutrition education
of adolescents, ab 76, ab 486
bibliography on materials for teachers, nn 494
in Colombia, ab 378
communication problems in, *546
for future professionals, ab 572
by mail, f 176
through posters, booklet on preparing, nn 286
in school lunchroom, ab 164
school nurse and school lunch, ab 464
television series available, nn 288
Nutritional status
of cerebral-palsied children, *22
methods of assessing, ab 266
in South India, ab 270
Nutritionists
career description, ab 572
challenge in field of chronic disease and aging, ab 568

O

Obesity
blood fatty acids in, ab 56
body composition of young women, *332
body image disturbances in, *328
changes in adrenal activity in hypertension, ab 268
emotional and metabolic factors in, ab 264
fat as adipose organ, ab 368
formula diets in reducing, ab 261, f 540, ab 486
low-calorie diet, planning, ab 262
Metrecal in reducing, ab 261
new data on, *323
and physical activity, ab 157
recent research in, *224
treating and diagnosing, ab 570
in undiagnosed diabetes, ab 571
unhappy fat man, ab 376
in young girls, ab 153
Off-flavors in foods, ab 570
Onions, dehydrated
equivalent weight of, ab 154
use of, ab 158
Oranges, California, nutrients in, *552, *555
Organ meats, minerals and proximate composition of, *344
Ovens
booklet describing new, nn 506
temperature, effect on beef roasts, ab 569

P

Packaging
flexible, for frozen foods, ab 584
milk cartons
polycoated, ab 278
waxed paper, safety of, ab 60
Palatability of food, preferences and holding temperatures, *455
Pancreas, effect of raw soybean meal diet on, ab 65

Pancreatic insufficiency, starch test for, ab 569
Pantothenic acid in foods, *240
Papain as meat tenderizer, ab 61
Paper
  cartons
    milk, polycoated, ab 278
    waxed, safety of, ab 60
  containers in school lunch, cc 459
  cups for baking, ab 70
  service, savings from, ab 158
Parasites and vitamin B_{12} absorption, ab 472
Particle size of food, effect on food residues, *428
Partitions, room, ab 578
Peanuts
  lysine availability in cookies, ab 57
  milk powder as milk substitute, ab 264
Personality and cholesterol metabolism, ab 65
Personnel relations (see also Labor Relations)
  employee
    dissatisfaction, ab 480
    training, ab 572
  employment problems, training course on, nn 404
  grapevine, role in, ab 280
  in hospitals, *128
  job descriptions, preparing, ab 262
  legal rights and, ab 282
  merit review program, ab 160
  non-monetary benefits of employment, ab 480
Phenylketonuria, ab 262
  diagnosing, ab 63
Philippines, dietetics in, l 594
Phosphates, effect of fat in meat, ab 472
Phospholipids, synthesis of, ab 569
Phosphorus
  absorption and protein intake, ab 370
  and erosion of tooth enamel, ab 62
  in organ meats, *344
Pigs, nutritional disease and cereal fat intake, ab 380
Pork
  chops, price vs. marbling, ab 374
  heat and water-binding capacity of, ab 472
  leanness and moisture content, ab 374
  nutritive value of, f 230
  quality and backfat thickness, ab 471
Portion control, ab 162
Posters, preparation of, booklet on, nn 286
Potassium
  deficiency, ab 473
  needs in burned patients, ab 578
  in organ meats, *344
  in Puerto Rican meats and fish, *341
Poultry
  antibiotic preservation of, ab 59
  nutritive value of, ab 166
  use of, ab 166
Pre-eclampsia
  exchangeable sodium in, ab, 574
  and sodium chloride, ab 568
Preferences, food
  of Armed Forces, *439
  group attitudes and, *439
Pregnancy
  abnormal glucose metabolism in, ab 154
  insulin metabolism in, ab 266
  iophenoxic acid, effect in, ab 474
  nutrition in, ab 153, ab 156
    booklet, nn 285
    in Israel, ab 57
    Standards and Recommendations for Public Prenatal Care, published, nn 288
  pre-eclampsia
    exchangeable sodium in, ab 574
    sodium chloride in, ab 568
  protein and choline deficiencies, effect of, ab 262
  serum proteins and hepatic function in, ab 471
Prematurity
  feeding in, ab 63, ab 473
  intramuscular iron in anemia of, ab 57
  protein allowances in, ab 376
  tocopherol and nitrogen metabolism in, ab 572
Preservation, food
  antibiotics for, ab 60
  of fish and shell fish with radiation plus antibiotics, ab 569
  high-temperature, short-time method, ab 154
  irradiation, long-term effect on rats, ab 370
  by radiation, ab 60
Produce
  fresh, care of, ab 72
  handling of, ab 160
Productivity in food service industry, ab 582
Progressive Patient Care
  food service in, ab 160
  patient education in self-care, ab 160
Protective systems to save money, ab 284
Protein
  allowances in prematurity, ab 376
  and B-vitamin metabolism, ab 370
  complete, value, ab 155
  deficiency
    combating, ab 276
    in pregnant rats, ab 262
  dietary
    estimated from urine, ab 380
    and serum lipid levels, ab 63
  effect on calcium, phosphorus, and magnesium absorption, ab 370
  hydrolysates for flavor, ab 68
  intake in liver disease, *350
  intoxication in liver disease, *350
  meat, digestibility of heat-treated, ab 473
  metabolism, effect of glucagon on, ab 370
  and minor mineral metabolism, ab 370
  muscle
    effect of dehydro-freezing, ab 58
    effect of freezing, ab 58
  of organ meats, *344
  requirements of infants, ab 376, ab 376, ab 376
  serum
    in cardiovascular disease, ab 276
    in kwashiorkor, ab 63
    in pregnancy, ab 471
  supplementation of foods, ab 262
  treatment of kwashiorkor, ab 60
  "wear and tear," ab 378
Puerto Rico, sodium and potassium in meats and fish of, *341
Purchasing
  chicken, ab 68
  food, patterns for, ab 384
  practices in hospitals, f 546
  specification writing in, ab 578
  USDA Acceptance Service, ab 72, ab 72
Pyridoxine
  in baby foods, ab 65
  deficiency and brain function, ab 576
  in foods, *240
Pyruvate metabolism and gluconeogenesis, ab 266

Q

Questionnaires, developing, ab 64

R

Radiation
  of beef, storage after, ab 571
  plus antibiotics to preserve fish and shellfish, ab 569
  preservation, ab 60
    pre-irradiation, enzyme-inactivated meat palatability of, ab 266
    storage of, ab 266
Radionuclides in foods, *15, ab 157
  milk, f 53, f 545, ab 570
  non-milk foods, ab 570
  and people, ab 278
Reading, speeding up, ab 284, ab 284
Recipes
  gluten-free bread, f 146, l 594
  reasons for failure, ab 380
  for unsaturated fat diets, *536, *543
  for yams, conversion factors for fresh and canned, f 457
Reducing—see Obesity, Weight reduction
Refrigeration
  program to maintain food quality, ab 476
  salmonellae and staphylococci in foods, ab 366
Refrigerators
  commercial, sanitation standard for, nn 494
  gas, hazard of, f 260
  stainless steel, care of, ab 162
Rehabilitation
  of handicapped mothers, bibliography on, nn 494
  camps for handicapped, directory, nn 598
Research
  bibliography on laboratory animals, ab 374
  calcium balance studies, ab 382
  food
    administration, *444
    future of, ab 270
  government agencies financing, list of, nn 494
  psychiatric, diets in, ab 382
Residues
  from ingested food, *428
  insecticide
    in meat, ab 154
    in milk, ab 154, ab 154
  pesticide, and antibiotics, ab 378
Restaurant
  industry, new image of, ab 384
  survey of customers, ab 159
  training sales personnel, booklet, nn 286
Riboflavin
  in red blood cells, ab 261
  urinary excretion in man, ab 62
Roasting, low-temperature, ab 584
Rockfish, proximate composition of, ab 571
Rubner, M., place in history of geriatrics, ab 374
Russian literature, bibliography, ab 376

S

Safety
  fire precautions in the kitchen, f 252
  in school lunchrooms, ab 282, ab 588
  work injuries in lunchrooms, ab 164
Salad dressing, ab 588
Salads, assembly table for making, ab 159
Salaries, survey in hospitals, ab 476
Sales personnel, training in restaurant, booklet, nn 286
Saliva, electrolytes in, ab 569
Salmonella
  in Alaska, ab 65
  arthritis, ab 63
  in refrigerated foods, ab 366
  spread by eggs, ab 64
  at warm holding temperatures, ab 366
Salt
  accumulation during ham curing, ab 154
  poisoning in an infant, ab 153
  production in U.S., f 554
Sandwiches, making, film on, nn 404
Sanitation, ab 578, ab 582
  bacterial resistance in irradiating ham, ab 374
  chemistry of, ab 76
  course, ab 72
  dishwashing
    efficiency survey in Denver, ab 282
    field test for procedures, ab 158
  electronic dust control, ab 158
  equipment, cleanability of, ab 166
  in food service, ab 480
  in the kitchen, ab 66, ab 158
  ordinance, new model developed, ab 586
  of precooked frozen foods, *132
  61 suggestions, ab 582
  sources of information, ab 388
  standards
    for food products, ab 159
    for commercial refrigerators and freezers, nn 494
  of utensils, ab 157
Saridele, dehydrated soybean milk in Indonesia f 562
Satiety
  and hunger in man, ab 55
  signals, ab 55
Schizophrenia, amino acids in, ab 382
School lunch, ab 476
  education in lunchroom, ab 164
  in emergency feeding, cc 257
  management, ab 72, ab 280
  nurse's responsibility in nutrition education, ab 464

paper vs. plastic containers in, cc 459
safety in, ab 282, ab 588
Science, importance of, ab 576
Scurvy in Victoria, Australia, ab 58
Sea salts, ab 376, l 595
Seafood, frozen, use of, ab 159
Security systems to save money, ab 284
Seeds, pumpkin and sunflower, laxative effect of, ab 268
Service
food, automation in, ab 68, *119
table, ab 278
Shared dietitian, cc 357
Shellfish, antibiotic preservation, bacterial growth in, ab 154
Shrimp, breaded, standards for, f 245
Slides, booklet on preparing, nn 395
Sodium
exchangeable in normal pregnancy and pre-eclampsia, ab 574
in Hawaiian fruits and vegetables, ab 571
in organ meats, *344
in Puerto Rican meats and fish, *341
Sodium chloride
poisoning in an infant, ab 153
and pre-clampsia, ab 568
Soil, food, removing, ab 164
Solar cookers and ovens, f 256
South Africa
cardiac disease in racial groups of, ab 157
dietetics in, l 590
Soybeans
powder as milk substitute, ab 264
milk, dehydrated, in Indonesia, f 562
raw
antitrypsin factor in, ab 156
effect on pancreas, ab 65
Space travel, food for, ab 261
Specific dynamic effect, and energy expenditure, ab 55
Specifications, writing, ab 578
Spices, effect on gastric acid secretion, *426
Spinach, frozen, time-temperature tolerance of, ab 59
Stainless steel
care of, ab 164, ab 586
refrigerators, care of, ab 162
Stains, removal from uniforms, nn 598
Stare, F., receives Goldberger Award, nn 596
Staphylococci
and food poisoning, ab 157
in refrigerated foods, ab 366
at warm holding temperatures, ab 366
Starch test for pancreatic insufficiency, ab 569
State dietetic associations
Alabama, nn 86, nn 94, nn 188, nn 294, nn 296, nn 598
Alaska, nn 500
Arizona, nn 186, nn 496, nn 610
California, nn 94, nn 496, nn 500, nn 598, nn 610
Colorado, nn 296, nn 610
Connecticut, nn 610
Delaware, nn 290, nn 396, nn 500
District of Columbia, nn 188, nn 290
Florida, nn 88, nn 296
Georgia, nn 86, nn 186, nn 290, nn 294, nn 296, nn 396, nn 598
Hawaii, nn 500
Idaho, nn 94
Illinois, nn 390
Indiana, nn 500, nn 598
Iowa, nn 400, nn 600
Kansas, nn 498, nn 600
Kentucky, nn 88, nn 398
Louisiana, nn 88, nn 612
Maine, nn 188, nn 294
Maryland, nn 88
Massachusetts, nn 294, nn 298
Michigan, nn 90, nn 186, nn 294, nn 298
Minnesota, nn 92, nn 292, nn 602
Missouri, nn 90, nn 296, nn 400, nn 502
Nebraska, nn 90, nn 502
New Jersey, nn 292, nn 496, nn 602
New Mexico, nn 296, nn 298, nn 612
New York State, nn 94, nn 190, nn 296, nn 400, nn 496, nn 604
North Carolina, nn 90, nn 604
North Dakota, nn 94, nn 296, nn 298
Ohio, nn 94, nn 298, nn 400, nn 502, nn 604
Oklahoma, nn 94, nn 504, nn 604
Oregon, nn 606
Pennsylvania, nn 186, nn 190, nn 292, nn 296, nn 400, nn 606
Puerto Rico, nn 296
Rhode Island, nn 296, nn 498
South Carolina, nn 292, nn 398, nn 498
Tennessee, nn 498
Texas, nn 92, nn 94
Utah, nn 608
Vermont, nn 498, nn 610
Virginia, nn 92, nn 94
Washington State, nn 188
West Virginia, nn 92, nn 94, nn 608
Wisconsin, nn 502, nn 608
Steam-jacketed kettle, time-temperature relationships of custards made with whole egg solids, *49
Steam tables
care of, ab 282
holding temperatures
for palatability preferences, *455
to preserve food quality, *450
Steatorrhea, gluten-free diet in, ab 571
Sterilization, ultra-high-sterilization of milk, calcium availability after, ab 156
Stern, F., biographical note, f 226
Storage
areas, planning, ab 578
changes in frozen fish, ab 471
of frozen foods, time and temperature in, ab 59, ab 584
for hot foods, ab 280
of irradiated beef, ab 571
of semi-perishables, ab 476
Stress, overfeeding as, ab 56
Strikes in hospital, handling food problems, cc 563
Strontium
absorption in infants, ab 157
in foods, *15
of Britain, ab 471
in milk, f 53
uptake by plants, ab 570
in wheat, ab 578
Sulphur balances in pre-adolescents, ab 63
Supervision
delegation, film on, nn 288
types of, ab 390
Supervisors, rating of, ab 280
Supplementation
of bread with lysine and threonine, ab 274
of corn meal with amino acids, ab 274
INCAP all-vegetable protein mixtures, ab 568
vitamin and mineral, unnecessary, ab 570
Surfaces, cleanability of, ab 282
Surgery
acid-base balance in, ab 278
cholecystostomy in aged, ab 57
for cleft lip and palate, ab 262
gastrectomy, vitamin B_{12} neuropathy after, ab 264
gastric resection
difficulties after, ab 268
for duodenal ulcer, ab 382
nitrogen balance after, ab 274
nutrition
in aged, ab 268
foundation for, ab 366
Surveys
developing a questionnaire, ab 64
dietary, methods for, ab 266
Sweeteners in frozen citrus drinks, ab 59

T

Tables, evaluating, ab 76
Tapeworm, ab 376
Taste testing, preference vs. difference rating, ab 266
Tea, magnesium in, *438
Teaching machine, ab 480
Teeth
of Adventist children, ab 576
caries and phosphated bread, ab 62
enamel erosion and phosphorus, ab 62
Television series on nutrition education, nn 288
Temperature, salmonellae and staphylococci
in refrigerated food, ab 366
in warm foods, ab 366
Testing, psychologic, ab 478
Thirst, physiologic basis of, ab 65
Threonine
availability in corn, ab 274
supplementation for bread, ab 274
Thyroxine metabolism in children, ab 156
Tocopherol
in premature infants, ab 572
requirements and polyunsaturated lipids, *231
Trace minerals in blood
of normal persons, ab 261
of patients with blood diseases, ab 261
Traffic, kitchen, routing of, ab 390
Training
employee, new approach to, ab 572
restaurant sales personnel, booklet, nn 286
suggestions, ab 586
Trichinosis, inspection of meat for, ab 268
Triglyceride, serum, effect of diet on, ab 380
Trypsin, anti- factor, in raw soybeans, ab 156
Tryptophan
metabolism, ab 380
defect in, ab 276
as niacin precursor, ab 473
Turkey, ab 166
handbook revised, nn 407
rolls, ab 164
types available, ab 162
Turtle meat poisoning, ab 276

U

Ulcer
duodenal
gastric resection for, ab 382
hormone treatment in, ab 155
medical management, ab 366
surgery, follow-up study, ab 268
treatment of, ab 578
peptic
precipiting factors in, ab 155
treatment of, ab 153
Uniforms, ab 68
fashion in, ab 388
Unions, see Labor relations
Utensils
for electronic cooking, ab 572
for food production, ab 384
sanitizing of, ab 157
stainless steel, ab 282

V

Vagotomy and antral resection, follow-up study, ab 268
Vegetable oils, food pattern incorporating, *536, *540, *543
Vegetables
canned, ab 76
dietary contribution in U. S. diet, f 140
frozen, ascorbic acid in, ab 471
household use of, *32, *37, *135, *141
preparation of, ab 160
sodium in Hawaiian, ab 571
Vending food, ab 159
Vending machines
future potential of, ab 474
in hospitals, ab 160
Ventilation for grease removal, booklet, nn 402

Ventilators, ab 166
Vital statistics
  longevity in the U. S., f 131
  mortality in the U. S., f 343
Vitamin B complex
  inhibitors of, ab 474
  metabolism and protein intake, ab 370
Vitamin B_6 (see Pyridoxine)
Vitamin B_{12}
  absorption, ab 370
    and parasites, ab 472
    site of, in man, ab 374
    deficiency, ab 156
    in aged, ab 268
  distribution and absorption in man, ab 61
  in malabsorption syndrome, ab 153
  neuropathy after gastrectomy, ab 264
  serum, in kwashiorkor, ab 63
  synthesis studied, ab 64
Vitamin E
  in human blood, ab 57
  requirements and polyunsaturated lipids, *231
Vitamin K and prothrombin time in liver disease, ab 59
Vitamin K_1 in neonatal hypothrombinemia, ab 380
Vitamins
  in California lemons and oranges, *552, *555
  deficiencies, antibody formation in, ab 63
  lesser known, in foods, *240, nn 394
  seized due to false claims, f 31
  supplements unnecessary, ab 570
  in wheat products, ab 264

W

Waste disposal unit, value of, ab 392
Water
  copper poisoning from corroded heater, ab 268
  hardness and cardiovascular disease, ab 60
  sea, no value as dietary supplement, ab 155, l 595
  treatment to prevent amebiasis, ab 376
  well, bacterial content of, ab 262
Weight
  of adolescents, ab 157
  and serum cholesterol of coronary patients, ab 264
Weight reduction
  effect on mortality, *326
  formula diets, pitfalls of, f 340
  low-calorie diet, planning, ab 262
  with Metrecal, ab 261
  team approach, ab 70
West Indies, dietary habits in, ab 382
Wheat
  flours, milled, amino acids in, ab 264
  products, vitamins in, ab 264
White House Conference on Children and Youth, report on, *354
Women
  manganese metabolism in, ab 62
  serum magnesium in, ab 572
Work
  sampling to measure performance, ab 576
  scheduling, ab 392
    technique for analyzing labor utilization, ab 576
  simplification, *122
    salad assembly table for, ab 159
Writing, improving, ab 284

Y

Yams, conversion factors for fresh and canned, f 457
Youth, White House Conference on, report, *354

Z

Zinc
  in blood cells in liver disease, ab 268
  metabolism
    in alcoholism, ab 61
    in cirrhosis, ab 382

AUTHOR INDEX

B

Babcock, C. G. *546
Barber, M. I., *458
Bates, D. J., br 54
Birdsall, J. J., *555
Blaker, G. G., *450, *455
Bleiler, R. E., *22
Bloetjes, M. K., f 353
Bourne, G. H., br 54
Bowles, K., *32, *37, *135, *141
Brown, H. B., *536, *540

C

Campbell, J. E., *15
Cancio, M., *341
Century, B., *231
Chihan, M., *332
Cohen, L., cc 461
Cohn, C., *433
Committee on Disaster Feeding and Civil Defense Planning, A.D.A., cc 259
Cox, G. W., f 53
Crooks, H., *240

D

Derse, P. H., *555
Donaldson, B. *444
Dunsing, M., *32, *37, *135, *141

E

Elvehjem, C. A., *236
Eppright, E. S., *354

F

Fawcett, N. G., f 443
Fothergill, L. D., *249
Fryer, J. H., *332

G

Galloway, L. S., *227
Ganong, W. L., *119, *122
Goldsmith, G. A., br 152
Gram, M. R., *437

H

Hains, A., cc 362
Hallahan, I. A., cc 257
Hardinge, M. G., *240
Harmuth, E. H., *332
Harper, H. A., *350
Harris, R. S., *27
Harvey, C. C., *231
Hashim, S. A., *531
Hopkins, H. T., *344
Horwitt, M. K., *231
Hunscher, H. A., br 54

I

Illinois State Medical Society, f 340

J

Joint Committee, A.D.A.–A.M.A., *425
Johnson, E. R., *128
Jooste, M., *147
Joseph, G. H., *552
Jutton, D. R., br 152

K

Karle, I. P., *22
Katsoyannis, P., f 121
King, C. G., *223
Kurtzman, S. R., cc 461

L

Lamb, M., cc 459
LeBaron, H. R., *354
Leverton, R. M., f 230
Lew, E. A., *323
Liveright, A. A., br 152
Longrée, K., *43, *49, *147
Lopez, H., *27

M

MacRill, J. R., *552
Manniello, M. J., *332
Martin, M. E. K., *332
Massengill, E. W., cc 459
McCarthy, M., *332
McGillivray, W. A., f 235
McHenry, E. W., br 54
Mendelson, M., *328
Meredith, A. P., *543
Miller, C., *43, *49
Morgan, A., f 53
Murphy, E. W., *344
Murthy, G. K., *15

N

Nelson, G. Y., *437
Newcomer, J. L., *455

O

Odell, G. V., f 230
Ohlson, M. A., *22

P

Pilgrim, F. J., *439
Porter, J. W. G., f 235

R

Ramsey, E., *450, *455
Rice, F. E., f 235, f 545
Rowe, A., f 146
Rutchik, R., cc 563

S

Shelton, L. R., *132
Siemers, G., *27
Smith, D. P., *344
Spears, M. C., cc 357
Spodnik, M. J., *540
Stevens, J. E., *552
Straub, C. P., *15
Stunkard, A., *328

T

Taylor, R. S., f 53
Teply, L. J., *555
Todhunter, E. N., f 78, f 127, f 226, f 349, f 454, f 539
Townsend, F., f 146

V

van de Kamer, J. H., f 438
Van Itallie, T. B., *531

W

Walsh, J. W., *246
Weijers, H. R., f 438
White, J. C., *43, *49, *147
Wick, A. J., cc 258
Wilcox, E. B., *227
Witting, L. A., *231

Y

Young, C. M., *332
Young, D. M., *560

PERIODICALS ABSTRACTED IN THE CURRENT LITERATURE SECTION OF THE JOURNAL

ADULT LEADERSHIP, Adult Education Assn., of U. S., 743 N. Wabash Ave., Chicago 11

AMERICAN JOURNAL OF CLINICAL NUTRITION, THE, 11 E. 36th St., New York 16

AMERICAN JOURNAL OF DIGESTIVE DISEASES, THE, Paul B. Hoeber, Inc., 49 E. 33rd St., New York 16

AMERICAN JOURNAL OF GASTROENTEROLOGY, THE, American College of Gastroenterology, Inc., 33 W. 60th St., New York 23

AMERICAN JOURNAL OF THE MEDICAL SCIENCES, THE, Lea & Febiger, 600 S. Washington Sq., Philadelphia 6

AMERICAN JOURNAL OF MEDICINE, THE, 11 E. 36th St., New York 16

AMERICAN JOURNAL OF NURSING, THE, American Nurses' Assn., 10 Columbus Circle, New York 19

AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY, C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3

AMERICAN JOURNAL OF PHYSIOLOGY, 9650 Wisconsin Ave., Washington 14, D. C.

AMERICAN JOURNAL OF PUBLIC HEALTH, American Public Health Assn, 1790 Broadway, New York 19

AMERICAN JOURNAL OF SURGERY, THE, 11 E. 36th St., New York 16

AMERICAN RESTAURANT, 5 S. Wabash Ave., Chicago 3

ANNALS OF BIOCHEMISTRY AND EXPERIMENTAL MEDICINE, Indian Inst. for Biochemistry and Experimental Medicine, Calcutta, India

ARCHIVES OF PEDIATRICS, 200 Park Ave., S. at 17th St., New York 3

BRITISH JOURNAL OF NUTRITION, THE, Cambridge Univ. Press, 32 E. 57th St., New York 22

BRITISH MEDICAL JOURNAL, British Medical Assn., Tavistock Sq., London, W.C.1, England

CANADIAN JOURNAL OF PUBLIC HEALTH, Canadian Public Health Assn., 150 College St., Toronto 5, Ont., Canada

CANADIAN MEDICAL ASSOCIATION JOURNAL, THE, 150 St. George St., Toronto 5, Ont., Canada

CEREAL CHEMISTRY, The American Assn. of Cereal Chemists, 1955 University Ave., St. Paul 4

CIRCULATION, American Heart Assn., 330 Brookline Ave., Boston 15

COLLEGE AND UNIVERSITY BUSINESS, 1050 Merchandise Mart, Chicago 54

CORNELL HOTEL AND RESTAURANT ADMINISTRATION QUARTERLY, Cornell University, Ithaca, N. Y.

DAIRY SCIENCE ABSTRACTS, Commonwealth Agricultural Bureaux, Farnham Royal, Bucks, England.

DIABETES, 1 E. 45th St., New York 17

DRIVE-IN MANAGEMENT, 1 E. First St., Duluth 2

ENDOCRINOLOGY, Charles C Thomas, 301 E. Lawrence Ave., Springfield, Ill.

FAST FOOD MAGAZINE, 630 Third Ave., New York 17

FEDERATION PROCEEDINGS, 9650 Wisconsin Ave., Washington 14, D. C.

FOOD ENGINEERING, 330 W. 42nd St., New York 36

FOOD AND NUTRITION NOTES AND REVIEWS, The Australian Inst. of Anatomy, Canberra, Australia

FOOD RESEARCH (see JOURNAL OF FOOD SCIENCE)

FOOD SERVICE MAGAZINE, 2132 Fordem Ave., Madison 1, Wis.

FOOD TECHNOLOGY, 510 N. Hickory St., Champaign, Ill.

FROSTED FOOD FIELD, 321 Broadway, New York 7

GASTROENTEROLOGY, Williams & Wilkins Co., 428 E. Preston St., Baltimore 2

GERIATRICS, Lancet Publications, Inc., 84 S. 10th St., Minneapolis 3

HOSPITAL MANAGEMENT, 105 W. Adams St., Chicago 3

HOSPITAL PROGRESS, 1438 S. Grand Blvd., St. Louis 4

HOSPITAL TOPICS, 30 W. Washington Blvd., Chicago 2

HOSPITALS, American Hospital Assn., 840 N. Lake Shore Dr., Chicago 11

I.C.R.S. MEDICAL REPORTS, Fordham University Press, New York 58

INPLANT FOOD MANAGEMENT, 71 Vanderbilt Ave., New York 17

INSTITUTIONS, 1801 Prairie Ave., Chicago 16

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY, American Chemical Soc., 1155 Sixteenth St., N. W., Washington 6, D. C.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY, 428 E. Preston St., Baltimore 2

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, THE, 535 N. Dearborn St., Chicago 10

JOURNAL OF THE CANADIAN DIETETIC ASSOCIATION, THE, Seccombe House, 443 Mt. Pleasant Rd., Toronto 7, Ont., Canada

JOURNAL OF CLINICAL INVESTIGATION, THE, 333 Cedar St., New Haven 11, Conn.

JOURNAL OF DAIRY SCIENCE, 510 N. Hickory, Champaign, Ill.

JOURNAL OF THE DIETETIC ASSOCIATION, VICTORIA, Miss L. Linton-Smith, C.S.I.R.O., Graham Road, Highett, Victoria, Australia

JOURNAL OF FOOD SCIENCE, 510 N. Hickory St., Champaign, Ill.

JOURNAL OF HOME ECONOMICS, American Home Economics Assn., 1600 Twentieth St., N. W., Washington 9, D. C.

JOURNAL OF THE INDIAN MEDICAL ASSOCIATION, 23, Samavaya Mansions, Corporation Place, Calcutta 13, India

JOURNAL OF J. J. GROUP OF HOSPITALS AND GRANT MEDICAL COLLEGE, J. J. Hospital, Bombay 8, India

JOURNAL OF LABORATORY AND CLINICAL MEDICINE, THE, C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3

JOURNAL OF THE NEW ZEALAND DIETETIC ASSOCIATION, Mrs. W. M. Goddard, Editor, 86 Rakau Rd., Hataitai, Wellington, E.2, N.Z.

JOURNAL OF NUTRITION, THE, The Wistar Inst. of Anatomy and Biology, 36th St. at Spruce, Philadelphia 4

JOURNAL OF PEDIATRICS, THE, 2600 N. Lawrence St., Philadelphia 33

LANCET, THE, 7 Adam St., Adelphi, London, W.C.2, England

MANAGEMENT METHODS, 22 Putnam Ave., Greenwich, Conn.

MEDICAL CLINICS OF NORTH AMERICA, THE, W. B. Saunders Co., 218 W. Washington Sq., Philadelphia 5

METABOLISM, Grune & Stratton, Inc., 381 Fourth Ave. S., New York 16

MODERN HOSPITAL, THE, 1050 Merchandise Mart, Chicago 54

NATURE, Macmillan Co., St. Martin St., London, W.C.2, England.
Third Ave., New York 17

NEW ZEALAND MEDICAL JOURNAL, 79 Lower High St., Dunedin, N. Z.

NRA NEWS, 1530 N. Lake Shore Dr., Chicago 10

MEDICINE, Williams & Wilkins Co., 428 E. Preston St., Baltimore 2
10 Columbus Circle, New York 19

NUTRITION, 68 Welbeck St., London, W.1, England

NUTRITION ABSTRACTS & REVIEWS, Rowett In-

NEW ENGLAND JOURNAL OF MEDICINE, THE, 8 Fenway, Boston 5

NEW YORK STATE JOURNAL OF MEDICINE, 750 Inc., 99 Park Ave., New York 16

PAPUA AND NEW GUINEA MEDICAL JOURNAL, stitute, Bucksburn, Aberdeen, Scotland

NUTRITION REVIEWS, The Nutrition Foundation,

NURSING OUTLOOK, Natl. League for Nursing,
Dept. of Public Health, Port Moresby, New Guinea

PEDIATRICS, Charles C Thomas, 301 E. Lawrence Ave., Springfield, Ill.

PERSONNEL JOURNAL, P. O. Box 239, Swarthmore, Penna.

PHYSIOLOGICAL REVIEWS, Am. Physiological Soc., Inc., 9650 Wisconsin Ave., Washington 14, D. C.

PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE, 104 Liberty St., Utica, N. Y.

PROFESSIONAL NURSING HOME, 2501 Wayzata Blvd., Minneapolis

PSYCHOSOMATIC MEDICINE, American Psychosomatic Soc., Inc., 3110 Elm Ave., Baltimore 11

PUBLIC HEALTH REPORTS, Govt. Printing Off., Washington 25, D. C.

QUICK FROZEN FOODS, 82 Wall St., New York 5

RESTAURANT MANAGEMENT, 71 Vanderbilt Ave., New York 17

ROYAL SOCIETY OF HEALTH JOURNAL, THE, 90 Buckingham Palace Rd., London, S.W.1, England

SANITARIAN, THE, Univ. of Denver, Denver 10

SCHOOL LUNCH JOURNAL, American School Food Service Assn., P. O. Box 8811, Denver 10

SCIENCE, American Assn. for the Advancement of Science, 1515 Massachusetts Ave., N.W., Washington 5, D. C.

SOUTHERN MEDICAL JOURNAL, 2601 Highland Ave., Birmingham 5

SURGERY, GYNECOLOGY AND OBSTETRICS, 54 E. Erie St., Chicago 11

VOLUME FEEDING MANAGEMENT, 205 E. 42nd St., New York 17

WHAT'S NEW IN HOME ECONOMICS, 466 Lexington Ave., New York 17

WHO CHRONICLE, Palais des Nations, Geneva, Switzerland

Index to Advertisers

Aatell & Jones, Inc. 600
Allen Foods, Inc. 600
American Gas Association 585
American Meat Institute 518
Automatic Food Shaping Company, Inc. 619

Bloomfield Industries, Inc. 615

Cambro Mfg. Co. 589
Campbell Soup Company 612
Canned Dairy Products, Inc. 608
Cereal Institute, Inc. 577
Cleveland Range Co. 585
Continental Coffee Company 587
Corn Products Company—
Best Foods Div. 575
Custom Food Products, Inc. 529

The Dietene Company 517

Gerber Products Co. 573

Herrick Refrigerator Company 614
Hobart Manufacturing Company ..... Cover 2
Hoffman-La Roche, Inc. 525

Insinger Machine Company 616

Kraft Foods 522-523-592-593

Legion Utensils Co., Inc. 619
Libbey Glass Company 609

Malt-O-Meal Company 603
Mead Johnson Laboratories Div. ..... Cover 4
Meals-On-Wheels System 606
Metropolitan Wire Goods Corp. 588

National Biscuit Company 597
National Turkey Federation 611
The H. R. Nicholson Company 619

Paper Cup & Container Institute, Inc. 602
Poultry & Egg National Board 607
Procter & Gamble Company 526-527

Quaker Oats Company ..... Cover 3-630

Raburn Products, Inc. 610

Savory Equipment, Inc. 595
John Sexton & Co. 530
Si-Lite Corporation 528
Southern Equipment Company 605
Standard Brands, Inc. 599
Swartzbaugh Div.—
United Service Equipment Co., Inc. 601
Syracuse China Corp. 602

Toastmaster Division—
McGraw Edison Company 579-580-581
Toledo Scale Corp. 521

Victory Metal Mfg. Corp. 613

Walker China Co. 604
The Wesson People 583
Wilson & Co., Inc. 524

OATMEAL IS A

Natural!

...needs no fortification

Naturally Nutritious

HIGH PROTEIN
HIGH B_1
HIGH IRON
HIGH PHOSPHORUS
LOW SODIUM
UNUSUALLY SOFT FIBER

Naturally Economical

LOW COST
SAVES TIME

Naturally Easy

EASY DIGESTIBILITY
EASY TO PREPARE

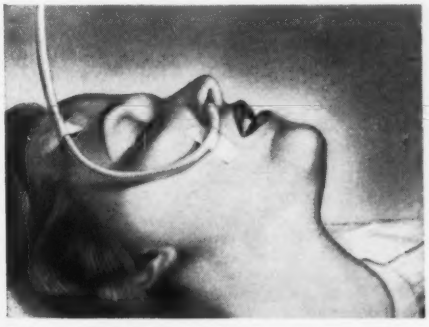
Patients like it.
That's why hospitals and dietitians prefer naturally nutritious
Quaker Oats and Mother's Oats are the same fine product.

The Quaker Oats Co.
CHICAGO 54, ILLINOIS

When ordinary food must be supplemented

ULCERS and other restricted diets, as in liver diseases and gall bladder conditions.

POST-OPERATIVE and other nutritionally depleted patients, such as geriatrics, prolonged convalescence, and chronic illnesses.



TOTAL FEEDING, whether by tube or orally, in conditions such as wired jaws and cancer of the oral cavity.

Patients like Meritene

The good-tasting protein-vitamin mineral supplement

Have you tasted Meritene?

ANALYSIS PER 100 GRAMS:
365 calories; 33 gm. protein (non-fat dry milk); 0.2 gm. fat; 58.4 gm. carbohydrate; 15 mg. iron; 1 gm. calcium; 7000 IU vit. A; 2.4 mg. thiamin; 4.3 mg. riboflavin; 22 mg. niacin; 80 mg. ascorbic acid; 550 IU vit. D.

MAIL COUPON FOR ONE LB. CAN

THE DIETENE COMPANY MD-61
Highway 100 at W. 23rd St.
Minneapolis 16, Minnesota

Please send me *free* a 1-lb. can (regular $1.98 retail size) of Meritene protein-vitamin-mineral supplement.

Name_____

Address_____

City_____ Zone___ State_____

FREE

pork in its proper place...

in the daily diet

The average serving of 100 gm. of lean pork provides a modest 250 calories(1)

Compare the fat content of lean pork with that of other lean meats.

Pork outranks other high-protein foods in its contribution of thiamine(B1)

Pork provides an important amount of other B vitamins

Pork contributes significant amounts of the essential minerals, iron, copper and phosphorus, magnesium and potassium, supplied in a form that the body can use readily.

1. Leverton, R.M., and Odell, G.V.: The Nutritive Value of Cooked Meat, Oklahoma Agricultural Experiment Station, Oklahoma State University, Miscellaneous Publication MP-49, 1958.

Use PORK—to tempt jaded appetites

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO • MEMBERS THROUGHOUT THE NATION

TAKE A BIG BITE
out of your DISHWASHING COSTS

TOLEDO Rackless Hi-Speed Conveyor Dishwasher

By automating your dishwashing operations with a new Toledo Rackless Conveyor Dishwasher, you can cut costs, increase production and bring sparkling new cleanliness to dishes and glassware.

What's more, Toledo offers unique flexibility, too. Exclusively Add-A-Tank design gives you just the length, capacity and features you need now . . . and allows for future expansion. Capacities of combinations range from 4,000 to 15,000 dishes per hour.

Many other Toledo features also assure superior performance, cost savings and reliability. 23½" width conveyor handles largest trays. Electric Water Level Control keeps tanks properly filled. Electric Final Rinse Control reduces consumption of rinse water and rinse agent.

A Toledo Kitchen Machines Dealer near you will give you specialized help in making your dishwashing operations the best by any standard of comparison. If you'd like catalog data, or other information, please write.

SERVICE Factory-Trained 240 Cities

TOLEDO® Kitchen Machines

Division of Toledo Scale Corporation • 245 Hollenbeck St., Rochester, N. Y.

Door Type Dishwashers . . . choice of timed automatic or push-button control. Efficient three-way door. Built of stainless steel for cleaning ease, lasting good looks.

Panoramic Door Dishwashers . . . Give easy access to full length of conveyor. Models with fresh water or recirculating prewash. Zip-Lok tubes, one level tank construction.

Disposers . . . Heavy-duty for fast, trouble-free operation. Full choice of sizes from ½ H.P. to 3 H.P. available in a wide selection of cone sizes.

Slicers . . . gravity feed, cushioned travel meat carriage. Rigid construction for true-gauge slices. Easiest cleaning, new sharpening efficiency.

Hi-Speed Mixers . . . feature positive, gear drive, clean efficient operation. Model TM-20 (20 qt.) shown. Also 30 qt. and 60 qt. sizes.

Everything you expect from just-peeled fresh fruit now chill-packed in ½ gallon jars

NEW

fruit sections

FROM KRAFT

You'll never need to peel again! Because Kraft now brings you ready-to-serve sections with all the flavorful tang and fresh taste of nature's finest fruit. Here's portion *and* cost control at a saving *to you* of time and money!

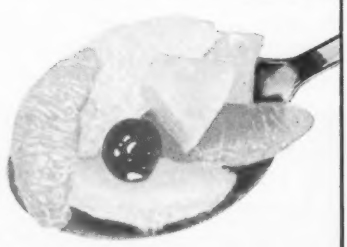
Only choice fruit from Florida's high-ridge groves enters Kraft's modern citrus plant in Lakeland. Pineapple is field-ripened, diced and blast-chilled. Fast, careful handling assures prime quality.

By hand, skilled women speedily peel and section select fruit. Because it's tree-ripened and picked daily the fruit segments are as firm, juicy and full-flavored as fine citrus can be.

Within 45 minutes of peeling, the plump, delicious segments have been placed in ½-gal. jars, vacuum sealed, and quick cooled to 30°. Insulated trucks rush jars to Kraft warehouses . . . and to you! Refrigerate (40 to 45°) on delivery . . . use right from the jars!

KRAFT FOODS, 500 PESHTIGO CT., CHICAGO 90, ILL. DIVISION OF NATIONAL DAIRY PRODUCTS CORP.

KRAFT **PINEAPPLE** CHUNKS
(Average 282 chunks per 1/2-gal. jar)



KRAFT **FRUIT SALAD**
(Approx. 1/5 pineapple, 2/5 orange, 2/5 grapefruit, plus maraschino halves)

KRAFT **GRAPEFRUIT** SECTIONS
(Average 98 segments per 1/2-gal. jar)

KRAFT
ORANGE
SECTIONS
KRAFT ORANGE SECTIONS
(Average 157 segments per 1/2-gal. jar)
KRAFT . . . for good food and good food ideas

How B-V adds beef flavor and nourishment to menu items for only pennies per serving

WILSON'S B-V is the most versatile product ever created to help solve the many cost and flavor problems existing in the food service business. To our many users B-V is many things. It is the means of getting rich brown gravy time after time with or *without* meat juices, making ordinary items like hamburger, stew and meat loaf into a special tasty delight. And for a quick, energy builder, nothing compares with B-V "beef tea."

Wilson's B-V springs from long-cooked, lean, red beef—much more flavorful than stock prepared from bones. Added to this beef extract we have blended specially selected vegetable proteins. These complement each other in taste . . . and provide healthful protein.

See for yourself how B-V places at your finger tips all the advantages of a long simmering stock pot. Try B-V soon. Contact your local Wilson & Co. representative.

B-V is fat-free, high in protein and low in carbohydrates. It is helpful in reducing diets. Wilson's B-V is a flavorful, nutritious, energy-giving food.

Send for free large quantity recipes. Write:

WILSON & CO., INC.

Dept. 102, Prudential Plaza, Chicago 1, Ill.

THE MODERN EXPANDED FOOD COLORING CONCEPT

COLOR
NOURISH

WITH VERSATILE

ROCHE *beta* CAROTENE

USE ONE PRODUCT TWO WAYS

COLOR

Give your oil-base and water-base foods color versatility and variety—from appealing pale yellow to hearty, appetizing orange—with Roche *Beta* CAROTENE.

NOURISH

Give your oil-base and water-base foods the nutritional-plus added by Vitamin A value in "the color that nourishes"—Roche *Beta* CAROTENE.

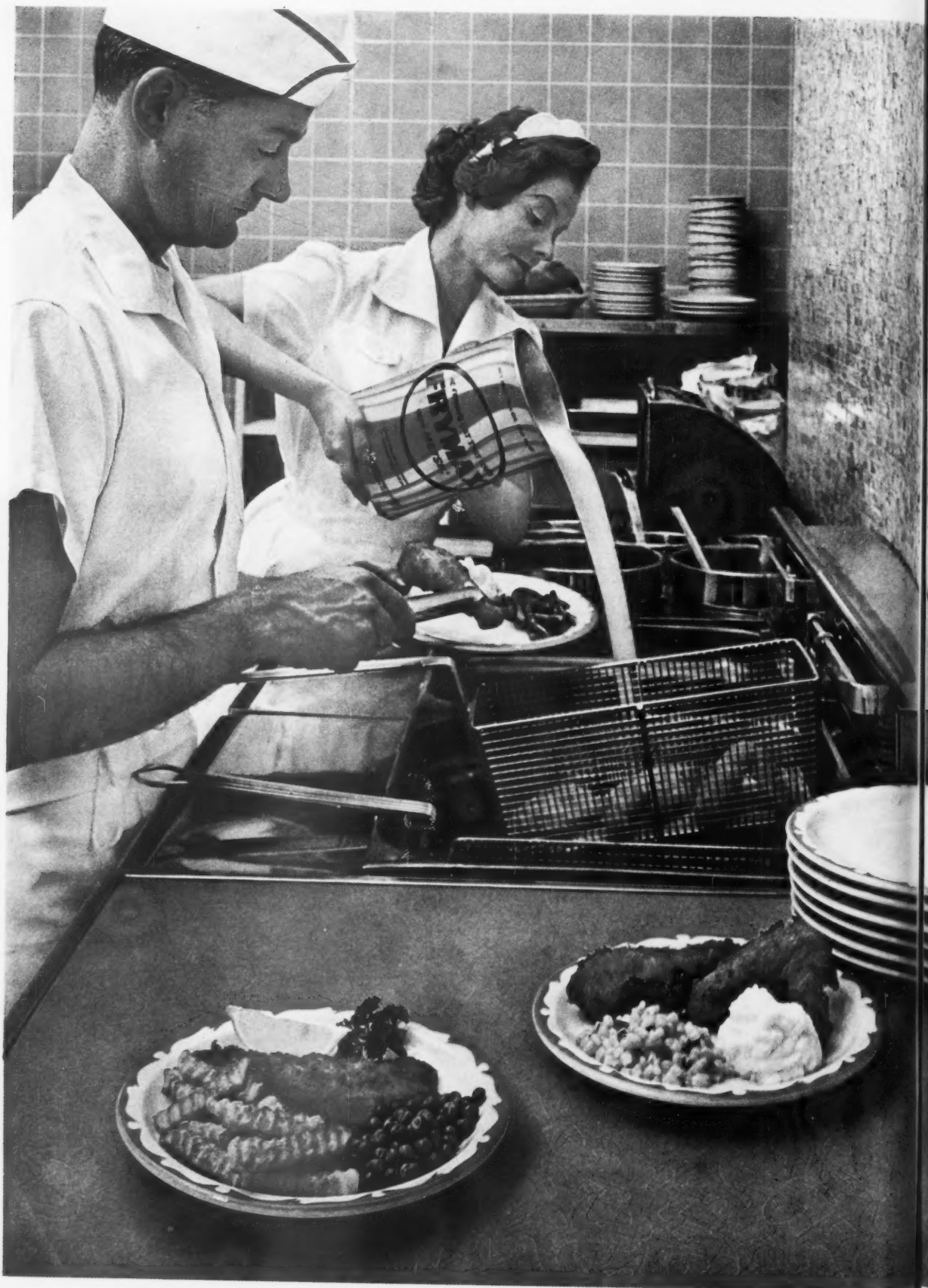
VERSATILE ROCHE *beta* CAROTENE
THE EXPANDED 2-IN-1 FOOD-COLORING CONCEPT
COLOR PLUS NUTRIENT

Vitamins come RIGHT from Roche

FINE CHEMICALS DIVISION
HOFFMANN-LA ROCHE INC.
Nutley 10, New Jersey: NOrth 7-5000 • New York: OXford 5-1400

ROCHE®

1961 HLR Inc.



Procter & Gamble created it just for restaurants...

Frymax...the most advanced frying fat you can buy!

Only Frymax gives you all 3 things you want most...

CONVENIENCE—it pours. Frymax is the finest vegetable fat—in liquid form for your convenience. You pour it in—fills kettles 8 times faster. Comes to frying temperature twice as fast. Cleans easier, and at lower temperatures, because it *stays* liquid.

ECONOMY—long fry life. Frymax gives you longer fry life than any ordinary solid fat. Reason? Frymax contains Metsil, P & G's exclusive ingredient that cuts down foaming, smoking and gumming. Result? Greater economy for you—both in time and money.

FINEST FRIED FOODS. Frymax, made from pure vegetable oil, is bland. It never transfers flavor from one food to another. There's no unsightly congealing on foods. And Frymax gives you the lightest, crispiest, golden-brown fried foods you ever served. Try Frymax in easy-to-handle 5-qt. cans—and get greater convenience, longer frying life and finer fried foods!

FRYMAX® *the frying fat that pours... made especially for restaurants!*

Silite makes the load lighter!

If there is any business with more details to be concerned about than food service, we have yet to hear about it. But Silite removes a big part of the load. How? By building-in a lot more staying power in every product. They last far longer than comparable equipment so that you buy it once and forget it. Silite is the line that frees burdened executives, gives them more time to concentrate on food. See for yourself.

Si Lite, inc.

2600 North Pulaski Road, Chicago 39, Illinois

these *Cool* dishes are top-notch summer items!

. . . because they're easy and economical to prepare

. . . because they're rich, nourishing and delicious

. . . because they perk up heat-worn appetites

When those "dog days" of summer are ruining appetites, nothing is so instantly appealing, so brightly refreshing as these cool Custom chicken classics—chicken salad and chicken aspic.

These two sure-fire summer favorites are especially popular when you make them the Custom way—with pure Custom Chicken Base—because they really have loads of flavor.

The secrets are simple. First, be sure when you cook your chickens, that Custom Chicken Base has been added to the cooking water. This actually puts flavor into the chicken, restoring flavor that has been cooked out.

Second, in making salad, use a touch of Custom Chicken Base in the mayonnaise (approximately one heaping teaspoonful to a cup of dressing). The tremendous difference in chicken salad flavor will surprise you.

And third, use Custom Chicken Base in making your aspic. It's always rich and delicious—never dull or flat tasting.

Honestly, with Custom Chicken Base your hot-weather menu takes on new vigor!

Custom **FOOD PRODUCTS, Inc.**

701 N. Western Ave., Dept. JA-61, Chicago 12, Ill.

Serve it hot...or serve it cold...

Sexton Tea is *qualitea!*

Serve Sexton Luxury Tea steaming hot . . . it's got the inimitable Darjeeling aroma, taste and clarity that real tea drinkers demand. Or serve Sexton's special ice tea blend . . . its flavor holds, through more ice than you can put in the glass.

Tea drinkers are a discriminating breed. They will recognize . . . and appreciate . . . and want more of Sexton *qualitea*. Keep plenty on hand. The only beverage you can serve for less cost is plain water!

Sexton

Quality Foods

JOHN SEXTON & CO.

Serving the volume feeding market since 1883

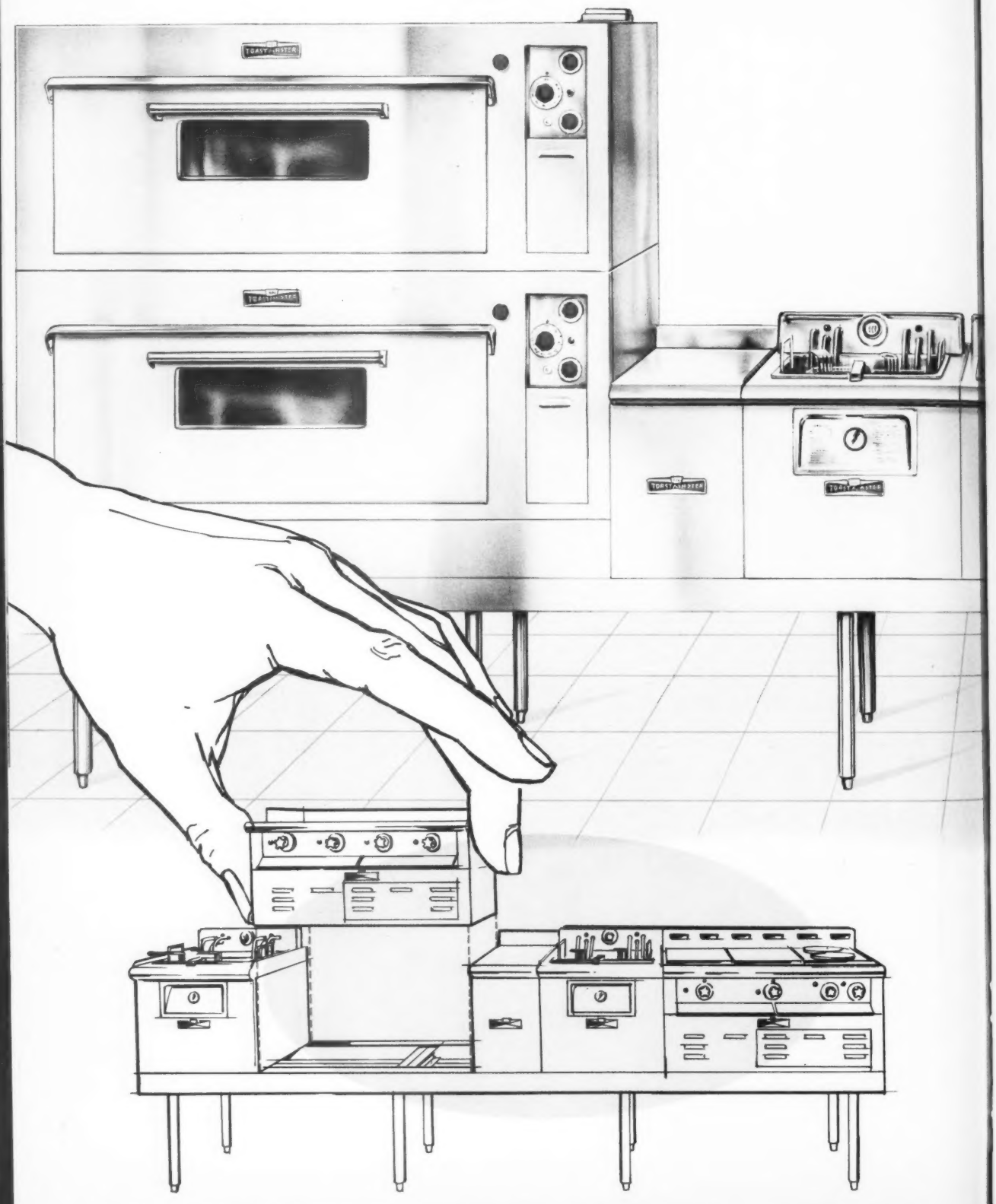
© 1961.
John Sexton & Co.

BLOCKS

are a basis of

Modern Design...

TOASTMASTER molds this same



It's as easy as stacking blocks to "customize" your kitchen with Toastmaster Modular cooking equipment. Units may be "banked" together in the combination that best suits your most efficient work flow pattern.

IMPORTANT . . . MAIL YOUR APPLICATION PROMPTLY

Application for Housing Accommodations

THE AMERICAN DIETETIC ASSOCIATION

St. Louis, Missouri • October 24-27, 1961

For your convenience in making hotel reservations for the coming meeting of THE AMERICAN DIETETIC ASSOCIATION, hotels, with rates, are listed below. Use the form at the bottom of this page, indicating your first, second and third choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All reservations must be cleared through the Housing Bureau. ALL REQUESTS FOR RESERVATIONS MUST GIVE DEFINITE DATE AND HOUR OF ARRIVAL AS WELL AS DEFINITE DATE AND APPROXIMATE HOUR OF DEPARTURE, ALSO NAMES AND ADDRESSES OF ALL PERSONS WHO WILL OCCUPY ACCOMMODATIONS REQUESTED MUST BE INCLUDED.

Hotel	Single Bed	Double Bed	Twin-Bedded	Suites
Chase-Park Plaza	$10.00 - 16.00	$13.00 - 18.00	$14.00 - 22.00	$23.00 - 75.00
Coronado	8.95 - 14.00	11.00 - 15.50	13.50 - 18.00	20.00 - 50.00
Lennox	8.50 - 14.00	10.00 - 12.50	14.00 - 16.00	25.00 - 40.00
Mayfair	8.50 - 15.00	10.00 - 16.00	14.00 - 15.00	26.00 - 50.00
Pick-Mark Twain	7.25 - 9.25	9.25 - 11.50	12.00 - 13.25	19.50 - 29.00
*Sheraton-Jefferson	7.50 - 9.75	10.50 - 13.75	11.25 - 18.00	25.00 - 45.00
Statler-Hilton	8.00 - 11.50	11.00 - 14.50	13.00 - 15.00	29.50 - 36.50
Warwick	5.50 - 8.00	8.50 - 12.00	9.50 - 12.00	

In the event that the hotel room rate structure is changed prior to the above convention these rates will be changed accordingly.

*Headquarters hotel.

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO SEPTEMBER 24, 1961

Convention Reservation Bureau, A.D.A.
911 Locust Street, Room 406
St. Louis 1, Missouri

Please reserve the following accommodations for: THE AMERICAN DIETETIC ASSOCIATION CONVENTION in St. Louis, October 24-27, 1961.

Single Room_____ Double-Bedded Room_____ Twin-Bedded Room_____

2 Room Suite_____ Other Type of Room _____

Rate: From $_____ to $_____ First Choice Hotel_____

Second Choice Hotel_____

Third Choice Hotel_____

Arriving at Hotel (date)_____ hour_____ A.M._____ P.M. Leaving (date)_____

Hour_____ A.M._____ P.M.

THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of both persons for each double room or twin-bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

_____

_____

_____

(Individual Requesting Reservations)

Name _____

Address _____

City and State _____

If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere provided all hotel rooms available have not already been assigned.

New
complete
instant
mashed
enriched with
whole dry milk

NOW FROM KRAFT

Perfect control of quality, portions, costs all year 'round.

KRAFT SLICED IDAHOS... These new sliced Idahos from Kraft taste as good as those you peel. You'll find that out the first time you try them. Pour 'em from package to kettle. Simmer 12 minutes and they're ready! Then use these cooked slices for any of your potato dishes, even the fanciest. Now why go on peeling when there's this better way? Call your Kraftman today!

KRAFT "COMPLETE" INSTANT MASHED ... Now they're *complete* ... need only boiling water and salt! In seconds, they're fluffy white ... and *stay* that way! Smooth. Creamy, too, 'cause they're extra rich with butterfat. (Kraft adds whole milk crystals, makes 'em "complete"!) You'll enjoy the flavor, the quick, easy preparation. And you'll get cost and portion control like you've never had before. So try them soon!

New
sliced
idahos
with cost-saving
convenience!

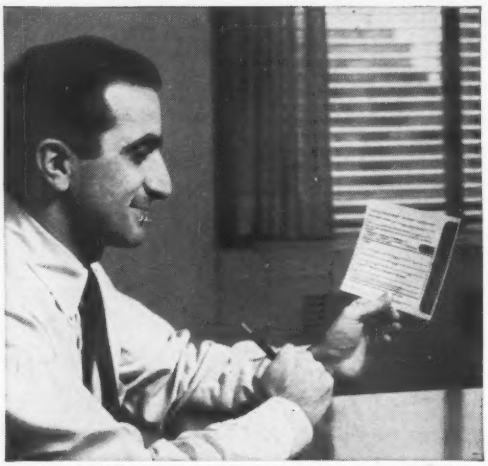
In 1961, you, the nation's physicians, will diagnose an estimated 70,000 cases of cancer of the colon and rectum. Although potentially this is a highly curable cancer, each year more than two thirds of such patients die of the disease. Thousands are lost needlessly. They could be saved by proper medical treatment of the disease, found by annual examination, in its presymptomatic and most curable stage. The regular health checkup and alertness to first symptoms are great life-savers.

To help bring such patients to you *in time*, the American Cancer Society has developed a forceful, comprehensive public education program on cancer of the colon and rectum. The Society's newest film, *Life Story* dramatizes for the public the importance of the inclusion of digital and

PROCTOSCOPIC EXAMINATIONS IN THE ANNUAL HEALTH CHECKUP.

In this, as in the preparation of all of its life-saving educational materials, the Society is aided by the best medical and lay experts available. The physician and the layman in the American Cancer Society are truly partners for life.

AMERICAN CANCER SOCIETY



You build the future with Savings Bonds. Every Savings Bond you buy makes a big contribution to keeping our country strong . . . so you can enjoy the things you're saving for.

How to buy a down payment on a new home for $1.25 a day

Saving for a new home, or anything else in fact, is simply a matter of spending less than you earn. Thousands of Americans have found an automatic way: the Payroll Savings Plan where they work. Through this plan your payroll clerk sets aside a certain amount each payday for U.S. Savings Bonds. As little as $1.25 a day buys a $50 Bond a month (cost $37.50). In 5 years you'll own Bonds worth $2,428.00 —enough for a substantial down payment and closing costs. And you'll have become a homeowner with money that probably would have slipped through your fingers.

Six nice things about U.S. Savings Bonds

• You can save automatically on the Payroll Savings Plan, or buy Bonds at any Bank • You now earn 3¾% to maturity, ½% more than ever before • You invest without risk under a U.S. Government guarantee • Your Bonds are replaced free if lost or stolen • You can get your money with interest anytime you want it • You save more than money—you buy shares in a stronger America.

Will he ever save the down payment? He'll be in his new home sooner than he thinks, if he saves something every payday. The effortless, automatic way is the Payroll Savings Plan for U.S. Savings Bonds.

Guaranteed by Uncle Sam to grow. U.S. Savings Bonds are an absolutely riskless investment. Each Bond has its growth values on the back—guaranteed in writing by the U.S. Government.

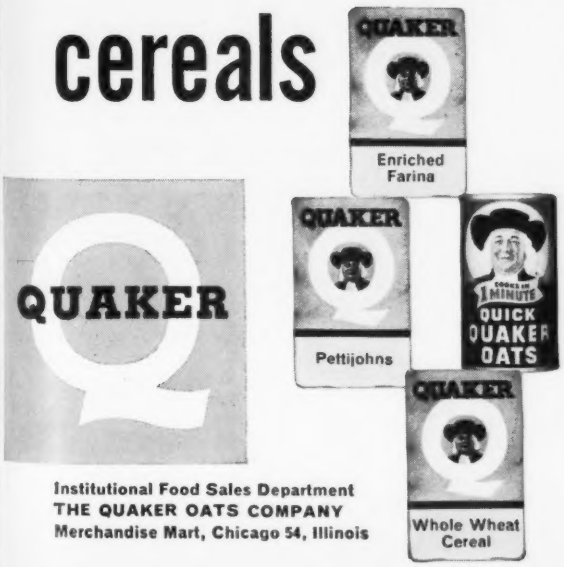
20th ANNIVERSARY 1941 1961

You save more than money with U.S. Savings Bonds

This advertising is donated by The Advertising Council and this magazine.

? *low sodium diet dilemma*

specify QUAKER quick cooking cereals



Quaker quick cooking cereals are *mechanically* made. Nothing is added to induce quick cooking, nothing that would increase sodium content is introduced at all. And they have all of the wonderful nourishment of the slower cooking cereals.

And, being quick cooking, they're easy for hospital kitchens . . . or for patients . . . to make. Never any excuse to skip a hot, nourishing cereal because "it's just too much trouble." Patients find them easy to buy, too. They're available at all grocery stores.

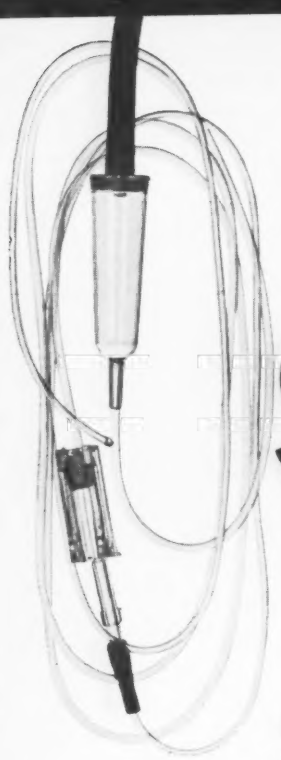
Vary your low sodium diets by specifying any—or all—of the three Quaker Quick Cooking Cereals: Oats, Pettijohns and Farina. Each is full of nourishment, each is low in sodium.

For detailed information on Quaker low sodium cereals, quick-cooking, hot or ready-to-eat, see your institutional food distributor. Or, write direct to the address below.

Don't forget, Quaker and Mother's Oats are the same.

QUAKER QUICK COOKING CEREAL SODIUM CONTENT		
(typical analysis)	Cooks in:	Mg/100 gms.
Quick Quaker Oats	1 min.	3
Quaker Farina	2½ mins.	2
Pettijohns	5 mins.	2
Whole Wheat Cereal	10 mins.	6

Institutional Food Sales Department
THE QUAKER OATS COMPANY
Merchandise Mart, Chicago 54, Illinois



for controlled therapeutic nutrition during hospitalization

SUSTAGEN®

Complete therapeutic nutriment

to supply all or part of the patient's nutritional requirements

Sustagen is a carefully controlled blending of protein, carbohydrate, and fat, plus essential vitamins and minerals.[1,2]

convenient and accurate—Simply add Sustagen powder to water and mix. Easy to accurately control the intake of nutrients.

results—With Sustagen you get needed nutrients into patients who can't or won't eat solids, thus enabling you to provide the needed nourishment.

versatile—Sustagen is particularly suited for tube feeding[1] because its low fat content allows excellent gastrointestinal tolerance.[1,2] The pleasant, bland flavor of Sustagen also makes it a palatable beverage for oral use.[2]

Formulation: In each glass of Sustagen beverage (⅔ cup of Sustagen powder, 100 Gm., and ⅔ cup of water):

Calories	390
Protein	23.5 Gm.
Fat	3.5 Gm.
Carbohydrate	66.5 Gm.
Vitamins:	
Vitamin A	1110 units
Vitamin D	88 units
Vitamin E	2.2 units
Ascorbic acid	66 mg.
Thiamine hydrochloride	2.2 mg.
Riboflavin	2.2 mg.
Niacinamide	22 mg.
Calcium pantothenate	8.8 mg.
Pyridoxine hydrochloride	1.1 mg.
Choline bitartrate	55 mg.
Vitamin B_{12}	0.9 mcg.
Minerals:	
Iron (from ferrous sulfate)	3.3 mg.
Calcium	700 mg.
Phosphorus	500 mg.
Sodium	210 mg.
Potassium	770 mg.

Sustagen is made from powdered whole milk, non-fat milk solids, calcium caseinate, maltose, dextrins and dextrose, plus vitamins and iron.

References: (1) Pareira, M. D., *et al.*: J.A.M.A. *156*:810-816 (Oct. 30) 1954. (2) Winkelstein, A.: Am. J. Gastroenterol. 27:45-52 (Jan.) 1957.

#532

293R61

Mead Johnson Laboratories

Symbol of service in medicine